

## References

- [abadi2018] Abadi B.N.R., Farid M., and Mahzoon M. Redundancy resolution and control of a novel spatial parallel mechanism with kinematic redundancy. *Mechanism and Machine Theory*, 133:112–126, 2018.
- [abbasnejad2011] Abbasnejad G., Daniali H.M., and Fathi A. Architecture optimization of 4PUS+1PS parallel manipulator. *Robotica*, 29(5):683–690, September 2011.
- [abbasnejad2012] Abbasnejad G. and Carricato M. Real solutions of the direct geometrico-static problem of underconstrained cable-driven parallel robot with 3 cables: a numerical investigation. *Meccanica*, 473(7):1761–1773, 2012.
- [abbasnejad2012-1] Abbasnejad G., Daniali H.M., and Kazemi S.M. A new approach to determine the maximal singularity-free zone of 3-RPR planar parallel manipulator. *Robotica*, 30(6):1005–1012, October 2012.
- [abbasnejad2015] Abbasnejad G. and Carricato M. Direct geometrico-static problem of underconstrained cable-driven parallel robots with n cables. *IEEE Trans. on Robotics*, 31(2):468–478, April 2015.
- [abbasnejad2016] Abbasnejad G., Yoon J., and Lee H. Optimum kinematic design of a planar cable-driven parallel robot with wrench-closure gait trajectory. *Mechanism and Machine Theory*, 99:1–18, May 2016.
- [abbasnejad2019] Abbasnejad G., Eden J., and Lau D. Generalized ray-based lattice generation and graph representation of wrench-closure workspace for arbitrary cable-driven robots. *IEEE Trans. on Robotics*, 35(1), February 2019.
- [abdallah2017] Abdallah F.B. and others . Modeling and stabilization of a cable-driven parallel platform suspended by an airship. In *11th International Workshop on Robot Motion and Control*, Wasowo, July, 3-5, 2017.
- [abdallah2018] Abdallah F.B. and others . Modeling and control of an aerial robocrane using a wire driven system. In *Annual American Control Conference (ACC)*, Milwaukee,, June, 27-29, 2018.
- [abdallah2019] Abdallah F.B. and others . Modeling of a heavy-lift airship carrying a payload by a cable-driven parallel manipulator. *International Journal of Advanced Robotic Systems*, 16(4), 2019.
- [abdelaziz2010] Abdelaziz S. and others . Combining structural and kinematic analysis using interval analysis for a wire-driven manipulator. In *ARK*, pages 147–156, Piran, June 28- July 1, 2010.
- [abdelaziz2012] Abdelaziz S. and others . Development of a MR-compatible cable-driven manipulator design and technological issues. In *IEEE Int. Conf. on Robotics and Automation*, pages 1488–1494, Saint Paul, May, 14-18, 2012.
- [abdelaziz2012-phd] Abdelaziz S. *Développement d’un système robotique pour la radiologie interventionnelle sous IRM*. Ph.D. Thesis, Université de Strasbourg, Strasbourg, November, 29, 2012. **Keywords:** wire robot, medical, applications, planar robot.
- [abdelaziz2014] Abdelaziz S. and others . Design of a magnetic resonance imaging-compatible cable-driven manipulator with new instrumentation and synthesis methods. *ASME J. of Mechanical Design*, 136(19), September 2014.
- [abdelaziz2017] Abdelaziz S. and others . Control of cable-driven manipulators in the presence of friction. *Mechanism and Machine Theory*, 107:139–147, January 2017.
- [abdellatif2005] Abdellatif H. and Heimann B. Adapted time-optimal trajectory planning for parallel robot with full dynamic modelling. In *IEEE Int. Conf. on Robotics and Automation*, pages 413–418, Barcelona, April, 19-22, 2005.
- [abdellatif2006] Abdellatif H. and Heimann B. Learning control for accuracy enhancement of parallel kinematic machines. In *5th Chemnitz Parallelkinematik Seminar*, pages 443–456, Chemnitz, April, 25-26, 2006.
- [abdellatif2007] Abdellatif H., Grotjahn M., and Heimann B. Independent identification of friction characteristics for parallel manipulators. *ASME J. of Mechanical Design*, 129(7):294–302, May 2007.

- [abdellatif2007-1] Abdellatif H. and Heimann B. *Industrial Robotics, Theory, Modelling and Control*, chapter Model based control for industrial robots: uniform approaches for serial and parallel structures, pages 523–556. pro literatur Verlag, January 2007. **Keywords:** kinematics,dynamics,control,state of the art.
- [abdellatif2008] Abdellatif H., Heimann B., and Kotlarski J. Passivity-based observer/controller design with desired dynamics compensation for 6 dofs parallel manipulators. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 2392–2397, Nice, France, September, 22-26, 2008.
- [abdellatif2008-1] Abdellatif H., Heimann B., and Kotlarski J. *Parallel manipulators, New Developments*, chapter On the robust dynamics identification of parallel manipulators: methodology and experiments, pages 1–20. ITECH, April 2008. **Keywords:** dynamics,calibration.
- [abdellatif2009] Abdellatif H. and Heimann B. Computational efficient inverse dynamics of 6-DOF fully parallel manipulators by using the Lagrangian formalism. *Mechanism and Machine Theory*, 44(1):192–207, January 2009.
- [abdellatif2010] Abdellatif H. and Heimann B. Experimental identification of the dynamics model for 6-dof parallel manipulators. *Robotica*, 28(3):359–368, May 2010.
- [abdellatif2010-1] Abdellatif H. and Heimann B. Advanced model-based control of a 6-DOF Hexapod Robot: A case study. *IEEE/ASME Trans. on Mechatronics*, 15(2):269–279, 2010.
- [abdolshah2014] Abdolshah S. and Rosati G. First experimental testing of a dynamic minimum tension control (dmtc) for cable driven parallel robots. In *2nd Int. Conf. on cable-driven parallel robots (CableCon)*, Duisburg, August, 24-27, 2014.
- [abdolshah2017] Abdolshah S. and others . Optimizing stiffness and dexterity of planar adaptive cable-driven parallel robots. *J. of Mechanisms and Robotics*, 9, June 2017.
- [abdolshah2017-1] Abdolshah S. and others . Performance evaluation of a new design of cable-suspended camera system. In *IEEE Int. Conf. on Robotics and Automation*, Singapore, 2017.
- [abedinnasab2017] abedinnasab M.H. and others . Kinematic effects of number of legs in 6-DOF UPS parallel mechanisms. *Robotica*, 35:2257–2277, 2017.
- [abtahi2010] Abtahi M. and others . Experimental kinematic calibration of parallel manipulators using a relative position error measurement system. *Robotics and Computer-Integrated Manufacturing*, 26(6):799–804, December 2010.
- [achili2010] Achili R. and others . A robust adaptive control of a parallel robot. *Int. J. of Control*, 83(10):2107–2119, 2010.
- [achili2012] Achili R. and others . A stable adaptive force/position controller for a C5 parallel robot: a neural network approach. *Robotica*, 30(7):1177–1187, December 2012.
- [adkins97] Adkins F.A. and Haug E.J. Operational envelope of a spatial Stewart platform. *ASME J. of Mechanical Design*, 119(2):330–332, June 1997.
- [adli91] Adli M.A., Nagai K., Miyata K., and Hanafusa H. Analysis of internal force effect in parallel manipulators. *Trans. of the Society of Instrument and Control Engineers*, 27(11):1266–1273, November 1991.
- [advani2002] Advani S. and others . Design of a hexapod motion cueing system for the NASA Ames vertical motion simulator. In *AIAA Modeling and Simulation Technologies Conf.*, Monterey, August, 5-8, 2002.
- [advani2004] Advani S. and others . A full-flight simulator of the 1903 Wright flyer. In *AIAA Modeling and Simulation Technologies Conf.*, Austin, August, 11-14, 2004.
- [affi2004] Affi Z., Romdhane L., and Maalej A. Dimensional synthesis of a 3-translational-dof in-parallel manipulator for a desired workspace. *European Journal of Mechanics A/Solids*, 23(2):311–324, March - April , 2004.
- [affi2008] Affi Z. and Romdhane L. Modelling of the orientation error of a 3-dof translational parallel manipulator. In *2nd European Conf. on Mechanism Science (Eucomes)*, Cassino, September, 17-20, 2008.

- [affi2009] Affi Z. and Romdhane L. Analysis and mapping of the orientation error of a 3-dof translational parallel manipulator. *Robotica*, 27(3):367–377, May 2009.
- [aflakian2015] Aflakian A. and others . Computed torque control of a cable suspended parallel robot. In *3rd RSI/ISM International Conference on Robotics and Mechatronics*, Teheran, October, 7-9, 2015.
- [aflakian2018] Aflakian A. and others . Experimental study on the kinematics control of a cable suspended parallel robot for tracking purpose. *Mechatronics*, 50:160–176, 2018.
- [afzali2015] Afzali-Far B. and others . Influence of strut inertia on the vibrations in initially symmetric Gough–Stewart platforms-an analytical study. *Journal of Sound and Vibration*, 352:142–157, 2015.
- [agarwal2016] Agarwal A., Nasa C., and Bandyopadhyay S. Dynamic singularity avoidance for parallel manipulator using a task-priority based control scheme. *Mechanism and Machine Theory*, pages 107–126, 2016.
- [aghezi2014] Aghazi M. and Nestinger S.S. Comprehensive closed-form solution for the reachable workspace of 2-RPR planar parallel manipulator. *Mechanism and Machine Theory*, 74:102–116, 2014.
- [agrawal91] Agrawal S.K. Workspace boundaries of in-parallel manipulator systems. In *ICAR*, pages 1147–1152, Pise, June, 19-22, 1991.
- [agrawal92] Agrawal S.K. and Roth B. Statics of in-parallel manipulator systems. *ASME J. of Mechanical Design*, 114(4):564–568, December 1992.
- [agrawal92-1] Agrawal S.K. Workspace boundaries of in-parallel manipulator systems. *Int. J. of Robotics and Automation*, 7(2):94–99, 1992.
- [agrawal95] Agrawal S.K., Desmier G., and Li S. Fabrication and analysis of a novel 3 dof parallel wrist mechanism. *ASME J. of Mechanical Design*, 117(2):343–345, June 1995.
- [ahn2007] Ahn C. and others . High-tilt parallel positioning mechanism development and cutter path simulation for laser micro-machining. *Computer-aided design*, 39(3):218–228, March 2007.
- [ahouee2017] Ahouee R.A., Moussavi S.Z., and Hamed J. Neuro-fuzzy intelligent control algorithm for cable-driven robots with elastic cables. In *2nd International Conference on Cybernetics, Robotics and Control*, 2017.
- [ait-ahmed91] Ait-Ahmed M. and Renaud M. Dynamic modeling of closed-chain mechanisms and its application for a 6 d.o.f. actuated manipulator. Research Report 91420, LAAS, Toulouse, France, September 1991.
- [ait-ahmed92] Ait-Ahmed M. and Renaud M. Dynamic modeling of closed-chain mechanisms and its application for a 6 d.o.f. actuated manipulator. In *1st Int. Conf. in Electronics and Automatic Control*, pages 203–209, Tizi Ouzou, Algérie, May 1992.
- [ait-ahmed93-1] Ait-Ahmed M. and Renaud M. Polynomial representation of the forward kinematics of a 6 d.o.f. parallel manipulator. In *Int. Symp. on intelligent robotics*, Bangalore, Inde, January 1993.
- [ait-ahmed93-phd] Ait-Ahmed M. *Contribution à la modélisation géométrique et dynamique des robots parallèles*. Ph.D. Thesis, Université Paul Sabatier, Toulouse, February, 2, 1993. **Keywords:** kinematics,dynamics.
- [akbarzadeh2011] Akbarzadeh A. and Enferadi J. A virtual work based algorithm for solving direct dynamics problem of a 3-RRP spherical parallel manipulator. *J. of Intelligent and Robotic Systems*, 63(1):25–49, 1994.
- [akbarzadeh2013] Akbarzadeh A., Enferadi J., and Sharifnia M. Dynamics analysis of a 3-rrp spherical parallel manipulator using the natural orthogonal complement. *Multibody System Dynamics*, 29:361–380, 2013.
- [akbas2008] Akbas A. *Parallel manipulators, New Developments*, chapter Application of neural network to modeling and control of parallel manipulators, pages 21–40. ITECH, April 2008. **Keywords:** control,dynamics.
- [akcali2006] Akcali I.D. and Mutlu H. A novel approach in the direct kinematics of Stewart platform mechanisms with planar platform. *ASME J. of Mechanical Design*, 128(1):252–263, January 2006.
- [alamdar2020] Alamdar A. and others . A geometrical approach for configuration and singularity analysis of a new non-symmetric 2dof 5R spherical parallel manipulator. *Mechanism and Machine Theory*, 147, 2020.

- [alamdari2015] Alamdari A. and Krovi V.N. Modeling and control of a novel home-based cable-driven parallel platform robot: PACER. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 6330–6335, Hamburg, Germany, September 28– October 2, 2015.
- [alamdari2015-1] Alamdari A. and Krovi V.N. Robotical physical exercise and system (ROPES): a cable-driven robotic rehabilitation system for lower-extremity motor therapy. In *ASME DETC*, Boston, August, 2-5, 2015.
- [albagomez2007] Alba-Gomez O.G., Pamanes J.A., and Wenger P. Trajectory planning of a redundant parallel manipulator changing of working mode. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [albus92] Albus J., Bostelman R., and Dagalakakis N. The NIST SPIDER, a robot crane. *Journal of research of the National Institute of Standards and Technology*, 97(3):373–385, May 1992.
- [albus93] Albus J., Bostelman R., and Dagalakakis N. The NIST ROBOCRANE. *J. of Robotic Systems*, 10(5):709–724, July 1993.
- [alexandre2012] Alexandre dit Sandretto J., Daney D., and Gouttefarde M. Calibration of a fully-constrained parallel cable-driven robot. In *RoManSy*, pages 12–41, Paris, June, 12-15, 2012.
- [alexandre2012-1] Alexandre dit Sandretto J., Trombettoni G., and Daney D. Confirmation of hypothesis on cable properties for cable-driven robots. In *4th European Conf. on Mechanism Science (Eucomes)*, pages 85–94, Santander, September, 19-21, 2012.
- [alexandre2013] Alexandre dit Sandretto J. and others . Certified calibration of a cable-driven robot using interval contractor programming. In *Computational Kinematics*, Barcelona, May, 12-15, 2013.
- [alexandre2013-phd] Alexandre dit Sandretto J. *Étalonnage des robot à câbles, identification et qualification*. Ph.D. Thesis, Université de Nice- Sophia Antipolis, Nice, September, 11, 2013. **Keywords:** wire robot, calibration.
- [alia2018] Alias C. and others . An overview of warehousing applications based on cable robot technology in logistics. In *Int. Conf. on Service Operations and Logistics, and Informatics (SOLI)*, 2018.
- [alici2003] Alici G. and Shirinzadeh B. Optimum force balancing with mass distribution and a single elastic element for a five-bar parallel manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 3666–3671, Taipei, September, 14-19, 2003.
- [alici2004] Alici G. and Shirinzadeh B. Optimum dynamic balancing of planar parallel manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 4527–4532, New Orleans, April, 28-30, 2004.
- [alici2004-1] Alici G. and Shirinzadeh B. Optimum synthesis of planar parallel manipulators based on kinematic isotropy and force balancing. *Robotica*, 22(1):97–108, 2004.
- [alici2004-2] Alici G. and Shirinzadeh B. Topology optimisation and singularity analysis of a 3-SPS parallel manipulator with a passive constraining spherical joint. *Mechanism and Machine Theory*, 39:215–235, 2004.
- [alikhani2009] Alikhani A. and others . Workspace analysis of a three DOF cable-driven mechanism. *J. of Mechanisms and Robotics*, 1(4), 2009.
- [alikhani2011] Alikhani A. and others . Design of a large-scale cable-driven robot with translational motion. *Robotics and Computer-Integrated Manufacturing*, 27(2):357–366, April 2011.
- [alikhani2011-1] Alikhani A. and Vali M. Modeling and robust control of a new large scale suspended cable-driven robot under input constraint. In *8th International Conference on Ubiquitous Robots and Ambient Intelligence (URAI)*, Songdo, November, 23-26, 2011.
- [alizade94] Alizade R.I. and Tagiyev N.R. A forward and reverse displacement analysis of a 6-dof in-parallel manipulator. *Mechanism and Machine Theory*, 29(1):115–124, January 1994.
- [alizade94-1] Alizade R.I., Tagiyev N.R., and Duffy J. A forward and reverse displacement analysis of an in-parallel spherical manipulator. *Mechanism and Machine Theory*, 29(1):125–137, January 1994.
- [alizade2004] Alizade R.I. and Bayram C. Structural synthesis of parallel manipulators. *Mechanism and Machine Theory*, 39(8):857–870, August 2004.

- [alizade2007] Alizade R.I. and others . Structural synthesis of new parallel and serial platform manipulators. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [alizade2008] Alizade R.I., Cemal Can F., and Gezgin E. Structural synthesis of euclidean platform robot manipulators with variable general constraints. *Mechanism and Machine Theory*, 43(11):1431–1449, November 2008.
- [alizade2010-1] Alizade R, Selvi O., and Gezgin E. Structural design of parallel manipulators with general constraint one. *Mechanism and Machine Theory*, 45(1):1–14, January 2010.
- [alizadeh2009] Alizadeh D., Angeles J., and Nokleby S. On the computation of the home posture of the McGill Schönflies-motion generator. In *Computational Kinematics*, Duisburg, May, 6-8, 2009.
- [alizadeh2010] Alizadeh D., Angeles J., and Nokleby S. Optimum design of a pan-tilt drive for parallel robots. In *ARK*, pages 169–176, Piran, June 28- July 1, 2010.
- [allais2012] Allais A.A., McInroy J.E., and O’Brien J.F. A new class of locally decoupled Gough-Stewart platform manipulators. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 1301–1306, Vilamoura, October, 7-12, 2012.
- [allais2012-1] Allais A.A. and McInroy J.E. Locally decoupled micromanipulator using an even number of parallel force actuators. *IEEE Trans. on Robotics*, 28(6):1325–1334, February 2012.
- [almonacid2003] Almonacid M. and others . Motion planning of climbing parallel robots. *IEEE Trans. on Robotics and Automation*, 19(3):485–489, June 2003.
- [altuzarra2004] Altuzarra O. and others . A practical procedure to analyze singular configurations in closed kinematic chains. *IEEE Trans. on Robotics*, 20(6):929–940, December 2004.
- [altuzarra2006] Altuzarra O. and others . Motion pattern singularity in lower mobility parallel manipulators. In *ARK*, pages 489–496, Ljubljana, June, 26-29, 2006.
- [altuzarra2007] Altuzarra O. and others . Partially decoupled parallel manipulators based on multiple platforms. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [altuzarra2009] Altuzarra O. and others . Motion pattern analysis of parallel kinematic machines: a case study. *Robotics and Computer-Integrated Manufacturing*, 25(2):432–440, April 2009.
- [altuzarra2009-1] Altuzarra O. and others . Multiobjective optimum design of a symmetric parallel Schönflies-motion generator. *ASME J. of Mechanical Design*, 131(3):031002–1/031002–9, March 2009.
- [altuzarra2009-2] Altuzarra O. and others . Motion pattern analysis of parallel kinematic machines: a case study. *Robotics and Computer-Integrated Manufacturing*, 25(2):432–440, April 2009.
- [altuzarra2011] Altuzarra O. and others . A symmetric parallel Schönflies-motion manipulator for pick-and-place operations. *Robotica*, 29(6):853–862, October 2011.
- [altuzarra2011-1] Altuzarra O. and others . Workspace analysis of positioning discontinuities due to the clearances in parallel manipulators. *Mechanism and Machine Theory*, 46(5):577–592, May 2011.
- [altuzarra2011-2] Altuzarra O. and others . Design procedure for cuspidal parallel manipulators. *Mechanism and Machine Theory*, 46:97–111, 2011.
- [altuzarra2012] Altuzarra O. and others . A low energy consumption solar tracker based in parallel kinematics. In *RoManSy*, Paris, June, 12-15, 2012.
- [altuzarra2018] Altuzarra O. and others . Forward and inverse kinematics of 2-dof planar parallel continuum manipulators. In *EUCOMES*, pages 231–238, Aachen, September, 4-6, 2018.
- [altuzarra2018-1] Altuzarra O. and others . Position analysis in planar parallel continuum mechanisms. *Mechanism and Machine Theory*, 132:13–29, 2018.
- [altuzarra2018-2] Altuzarra O. and others . Kinematic characteristics of parallel continuum mechanisms. In *ARK*, pages 293–301, Bologna, July, 1-5, 2018.

- [altuzarra2019] Altuzarra O. and Merlet J-P. Certified kinematics solution of 2-dof planar parallel continuum mechanisms. In *15th IFToMM World Congress*, Cracow, June 30- July 4, 2019.
- [alwidyan2002] Al-Widyan K. and Angeles J. The kinetostatic design of a Schonflies-motion generator. In *ARK*, pages 311–318, Caldes de Malavalla, June 29- July 2, 2002.
- [alwidyan2011] Al-Widyan K. and Angeles J. The robust design of parallel spherical robots. *Mechanism and Machine Theory*, 46(3):335–343, March 2011.
- [amara2020] Amara V.D. and others . On the efficient control of series-parallel compliant articulated robots. In *IEEE Int. Conf. on Robotics and Automation*, Paris, May 31- August 31, 2020.
- [amici2008] Amici C. and others . A parallel compliant meso-manipulator for finger rehabilitation treatments: Kinematic and dynamic analysis. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 735–740, Nice, France, September, 22-26, 2008.
- [amici2008-1] Amici C. and others . Kinematic analysis of a compliant, parallel and three-dimensional meso-manipulator generated from a planar structure. In *2nd European Conf. on Mechanism Science (Eucomes)*, Cassino, September, 17-20, 2008.
- [amine2010] Amine S. and others . Singularity analysis of lower-mobility parallel robots with an articulated nacelle. In *ARK*, pages 273–282, Piran, June 28- July 1, 2010.
- [amine2012] Amine S. and others . Singularity analysis of the H4 robot using Grassman-Cayley algebra. *Robotica*, 30(7):1109–1118, December 2012.
- [amine2012-1] Amine S. and others . Singularity conditions of 3T1R parallel manipulators with identical limb structures. *J. of Mechanisms and Robotics*, 4(1), 2012.
- [amirat91] Amirat M.Y., Pontnau J., and Artigue F. Force-feedback control of a six dof parallel robot. Application to assembly in car manufacturing. *Revue d’Automatique et de Productique Appliquée*, 4(2):109–121, 1991.
- [amirat92] Amirat M.Y., Pontnau J., and Artigue F. Six degrees of freedom parallel robot with C5 link. *Robotica*, 10(1):35–44, January 1992.
- [amirat94] Amirat M.Y., Pontnau J., and Artigue F. A three-dimensional measurement system for robot manipulators. *J. of Intelligent and Robotic Systems*, 9(3):291–299, 1994.
- [amirat96] Amirat M.Y. and others . Design and control of a new six dof parallel robot: application to equestrian gait simulation. *Mechatronics*, 6(2):227–239, 1996.
- [amirinezhad2018] Amirinezhad S.V. and Donelan P. Kinematic constraint maps and C-space singularities for planar mechanisms with prismatic joints. In *ARK*, pages 212–220, Bologna, July, 1-5, 2018.
- [ancuta2009] Ancuta A., Company O., and Pierrot F. Modeling and optimization of Quadriglide, a Schönflies motion generator module for 5-axis milling machine-tools. In *IEEE Int. Conf. on Robotics and Automation*, pages 2174–2179, Kobe, May, 14-16, 2009.
- [anderson96] Anderson E.H., Leo D.J., and Holcomb M.D. Ultraquiet platform for active vibration isolation. In *SPIE Smart structures and Materials*, pages 436–451, San Diego, February, 25-29, 1996.
- [ando2000] Ando N., Ohta M., and Hashimoto H. Micro teleoperation with parallel manipulator. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Takamatsu, Japan, October 30- November 5, 2000.
- [ando2001] Ando N., Ohta M., and Hashimoto H. Development of the parallel manipulator workspace display system for tele-micromanipulation. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Maui, Hawaii, October 29- November 3, 2001.
- [andrade2006] Andrade-Cetto J. and Thomas F. Wire-based tracking using mutual information. In *ARK*, pages 3–14, Ljubljana, June, 26-29, 2006.
- [andreff2005] Andreff N., Marchadier A., and Martinet P. Vision-based control of a Gough-Stewart parallel mechanism using legs observation. In *IEEE Int. Conf. on Robotics and Automation*, pages 2546–2551, Barcelona, April, 19-22, 2005.

- [andreff2006] Andreff N. and Martinet P. Unifying kinematic modeling, identification, and control of a Gough–Stewart parallel robot into a vision-based framework. *IEEE Trans. on Robotics*, 22(6), December 2006.
- [andreff2006-h] Andreff N. Des droites et des robots, July, 13, 2006. **Keywords:** kinematics, control.
- [andreff2007] Andreff N., Dallej T., and Martinet P. Image-based visual servoing of a Gough-Stewart parallel manipulator using leg observations. *Int. J. of Robotics Research*, 26(7):677–688, July 2007.
- [andreff2008] Andreff N. and Dressler I. Closed-form calibration of the Gantry-Tau parallel robot. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 993–998, Nice, France, September, 22-26, 2008.
- [angel2004] Angel L. and others. Robotenis: parallel robot with visual control. In *World Automation Congress*, Seville, 2004.
- [angel2005] Angel L. and others. Robotenis system part ii: dynamics and control. In *IEEE Conference on Decision and Control*, Seville, 2005.
- [angel2005-1] Angel L. and others. Robotenis: design, dynamic modeling and preliminary control. In *IEEE/ASME International Conference on Advanced Intelligent Mechatronics*, Monterey, 2005.
- [angel2007] Angel L. and others. Visual servoing of a parallel robot system. In *European Control Conference*, Kos, 2007.
- [angeles87] Angeles J. and Gosselin C. Détermination du degré de liberté des chaînes cinématiques simples et complexes. In *7th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 199–202, Seville, September, 17-22, 1987.
- [angeles92] Angeles J. and Zanganeh K.E. The semi-graphical solution of the direct kinematics of general platform manipulators. In *ISRAM*, pages 45–52, Santa-Fe, November, 11-13, 1992.
- [angeles2002] Angeles J. The robust design of parallel manipulators. In *1st Int. Colloquium, Collaborative Research Centre 562*, pages 9–30, Braunschweig, May, 29-30, 2002.
- [angeles2002-1] Angeles J. The qualitative synthesis of parallel manipulators. In *Workshop on Fundamental Issues and Future Research Directions for Parallel Mechanisms and Manipulators*, Québec, October, 3-4, 2002.
- [angeles2003] Angeles J., Yang G., and Chen I-M. Singularity analysis of three-legged, six-dof platform manipulators with URS legs. *IEEE/ASME Trans. on Mechatronics*, 8(4):469–475, December 2003.
- [angeles2004] Angeles J. The qualitative synthesis of parallel manipulators. *ASME J. of Mechanical Design*, 126(4):617–624, July 2004.
- [angeles2005] Angeles J. The morphology design for a parallel Schönflies-motion generator. In *2nd Int. Colloquium, Collaborative Research Centre 562*, pages 37–56, Braunschweig, May, 10-11, 2005.
- [angeles2005-1] Angeles J. Is there a characteristic length of a rigid-body displacement? In *Computational Kinematics*, Cassino, May, 4-6, 2005.
- [angeles2005-2] Angeles J. The degree of freedom of parallel robots: a group-theoretic approach. In *IEEE Int. Conf. on Robotics and Automation*, pages 1017–1024, Barcelona, April, 19-22, 2005.
- [angeles2006] Angeles J. Is there a characteristic length of a rigid-body displacement? *Mechanism and Machine Theory*, 41(8):884–898, August 2006.
- [angeles2006-1] Angeles J. and others. The kinetostatic design of an innovative schönflies motion generator. *Proc. Instn Mech Engrs, Part C: J. Mechanical Engineering Science*, 220:935–944, 2006.
- [angeles2012] Angeles J. Design challenges in the development of fast pick-and-place robots. In *RoManSy*, Paris, June, 12-15, 2012.
- [annacondia96] Annacondia E. and others. An approach to simulation of parallel architecture machines. In *27th Int. Symp. on Industrial Robots (ISIR)*, pages 627–632, Milan, October, 6-8, 1996.
- [annacondia2002] Annacondia E. and others. An experience in design and development of joints for parallel kinematics machine. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 243–261, Chemnitz, April, 23-25, 2002.

- [anvari2019] Anvari Z., Ataei P., and Masouleh M.T. Collision-free workspace and kinetostatic performances of a 4-DOF Delta parallel robot. *Journal of the Brazilian Society of Mechanical Sciences and Engineering*, 41(2):99, January 2019.
- [aquino2020] Aquino G. and others . Novel nonlinear hypothesis for the Delta parallel robot modeling. *IEEE Access*, 2020.
- [aracil2000] Aracil R. and others . Kinematics control for navigation of mobile parallel robots applied to large structures. In *17th Int. Symp. on Automation and Robotics in Construction*, Taipei, Taiwan, 2000.
- [aracil2000-1] Aracil R. and others . Climbing parallel robots morphologies. In *IFAC Symp. on Robot Control, Syroco*, pages 471–476, Vienne, September, 21-23, 2000.
- [aracil2005] Aracil R. and others . REMO project: design, modelling and hydrodynamic simulation of a robot of variable geometry for actuations on maritime disasters. In *Symposium on Marine Accidental Oil Spills (VERTIMAR)*, Vigo, July, 13-16, 2005.
- [aracil2006] Aracil R., Saltarén R.J., and Reinoso O. A climbing parallel robot. *IEEE Robotics and Automation Magazine*, 13(1):16–22, March 2006.
- [arai90] Arai T., Cleary K., and others . Design, analysis and construction of a prototype parallel link manipulator. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, volume 1, pages 205–212, Ibaraki, Japan, July, 3-6, 1990.
- [arai91] Arai T. and others . Development of a parallel link manipulator. In *ICAR*, pages 839–844, Pise, June, 19-22, 1991.
- [arai92] Arai T., Stoughton R., and Merlet J-P. Teleoperator assisted hybrid control for parallel link manipulator and its application to assembly task. In *Int. Symp. on Measurement and Control in Robotics, ISMCR'92*, pages 817–822, Tsukuba, November, 15-19, 1992.
- [arai92-1] Arai T., Stoughton R., and Raju G.J. Bilateral control for parallel link manipulators. In *IMACS/SICE Int. Symp. on Robotics, Mechatronics, and Manufacturing Systems*, pages 467–472, Kobe, September, 16-20, 1992.
- [arai93] Arai T., Stoughton R., and Jaya Y.M. Micro hand module using parallel link mechanism. In *Japan-USA Symp. on Flexible Automation*, pages 163–168, San Francisco, July, 13-15, 1993.
- [arai93-1] Arai T., Larssonneur R., and Jaya Y.M. Calibration and basic motion of a micro-hand module. In *Int. Conf. on Indus. Electronics, Control and Instrumentation (IECON)*, pages 1660–1665, Hawaii, November, 15-19, 1993.
- [arai96] Arai T., Tanikawa T., Merlet J-P., and Sendai T. Development of a new parallel manipulator with fixed linear actuator. In *Japan-USA Symp. on Flexible Automation*, pages 145–149, Boston, July, 7-10, 1996.
- [arai96-1] Arai T., Hervé J.M., and Tanikawa T. Development of 3 dof micro finger. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 981–987, Osaka, November, 5-8, 1996.
- [arai2000] Arai T. and others . Parallel mechanisms with adjustable link parameters. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Takamatsu, Japan, October 30- November 5, 2000.
- [arai2002] Arai T. and others . A hybrid drive parallel robot for heavy material handling. *IEEE Robotics and Automation Magazine*, 9(1):45–54, March 2002.
- [arakelian2006] Arakelian V., Briot S., and Glazunov V.A. Singular positions of a Paminsa parallel manipulator. *J. of Machinery Manufacture and Reliability*, (1):62–69, 2006.
- [arakelian2007] Arakelian V., Briot S., and Glazunov V.A. Improvement of functional performance of spatial parallel manipulators using mechanisms of variable structure. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [arakelian2008] Arakelian V., Briot S., and Glazunov V. Increase of singularity-free zones in the workspace of parallel manipulators using mechanisms of variable structure. *Mechanism and Machine Theory*, 43(9):1129–1140, September 2008.



- [arakelian2008-1] Arakelian V. and Smith M.R. Design of planar 3-dof 3-RRR reactionless parallel manipulators. *Mechatronics*, 18(10):601–606, December 2008.
- [arata2009] Arata J. and others . Development of a haptic device DELTA-4 using parallel link mechanism. In *IEEE Int. Conf. on Robotics and Automation*, pages 294–300, Kobe, May, 14-16, 2009.
- [arata2011] Arata J. and others . Haptic device using a newly developed redundant parallel mechanism. *IEEE Trans. on Robotics*, 27(2):201–214, April 2006.
- [arcara2000] Arcara P. and others . Perception of depth information by means of a wire-actuated haptic interface. In *IEEE Int. Conf. on Robotics and Automation*, pages 3443–3348, San Francisco, April, 24-28, 2000.
- [aref2008] Aref M.M. and Taghirad H. Geometrical workspace analysis of a cable-driven redundant parallel manipulator: KNTU CDRPM. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 1958–1963, Nice, France, September, 22-26, 2008.
- [aref2009] Aref M.M., Taghirad H., and Barissi S. Optimal design of dexterous cable driven parallel manipulators. *International Journal of Robotics*, 1(1):29–47, 2009.
- [ares2001] Ares J., Brazales A., and Busturia J.M. Tuning and validation of the motion platform washout filter parameters for a driving simulator. In *Driving simulation Conf (DSC)*, pages 295–304, Sophia-Antipolis, September, 5-7, 2001.
- [arian2020] Arian A., Isaksson M., and Gosselin C. Kinematic and dynamic analysis of a novel parallel kinematic Schönflies motion generator. *Mechanism and Machine Theory*, 149, 2020.
- [aridon2007] Aridon G. and others . A model to predict the deployment of a space hexapod. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [aridon2007-phd] Aridon G. *Dynamique du déploiement autonome d’un hexapode à rubans pour applications spatiales*. Ph.D. Thesis, INSA, Lyon, October, 22, 2007. **Keywords:** dynamics, flexible robot, applications.
- [aridon2009] Aridon G. and others . Self-deployment of a tape-spring hexapod: experimental and numerical investigation. *ASME J. of Mechanical Design*, 131(2):021003–1/021003–7, February 2009.
- [arreguin2022] Arreguin J.L.R., Ceccarelli M., and Torres-SanMiguel C.R. Design and simulation of a PK testbed for head impact evaluation. *Robotica*, 40:1293–1308, 2022.
- [arrouk2010] Arrouk K.A., Bouzgarrou B.C., and Gogu G. Workspace determination and representation of planar parallel manipulator in a CAD environment. In *3rd European Conf. on Mechanism Science (Eucomes)*, pages 605–612, Cluj-Napoca, September, 14-17, 2010.
- [arrouk2016] Arrouk K.A., Bouzgarrou B.C., and Gogu G. CAD-based unified graphical methodology for solving the main problems related to geometric and kinematic analysis of planar parallel robotic manipulators. *Robotics and Computer-Integrated Manufacturing*, 37:302–321, 2016.
- [arrouk2018] Arrouk K.A., Bouzgarrou B.C., and Gogu G. On the full-spin dexterous orientation workspace of spherical parallel robot of 3 – RRR-type. In *EUCOMES*, pages 347–354, Aachen, September, 4-6, 2018.
- [arsenault2004] Arsenault M. and Boudreau R. The synthesis of three-degree-of-freedom planar parallel mechanisms with revolute joints (3-RRR) for an optimal singularity-free workspace. *J. of Robotic Systems*, 21(5):259–274, 2004.
- [arsenault2006] Arsenault M. and Gosselin C.M. Kinematic and static analysis of a planar modular 2-dof tensegrity mechanism. In *IEEE Int. Conf. on Robotics and Automation*, pages 4193–4198, Orlando, May, 16-18, 2006.
- [arsenault2006-1] Arsenault M. and Gosselin C.M. Kinematic, static and dynamic analysis of a spatial three-degree-of-freedom tensegrity mechanism. *ASME J. of Mechanical Design*, 128(5):1061–1069, September 2006.
- [arsenault2006-2] Arsenault M. and Boudreau R. Synthesis of planar parallel mechanisms while considering workspace, dexterity, stiffness and singularity avoidance. *ASME J. of Mechanical Design*, 128(1):69–78, January 2006.
- [arsenault2009] Arsenault M. and Gosselin C.M. Kinematic and static analysis of a 3-PUPS spatial tensegrity mechanism. *Mechanism and Machine Theory*, 44(1):162–179, January 2009.

- [arsenault2010] Arsenault M. Optimization of the prestress stable wrench closure workspace of planar parallel three-degree-of-freedom cable-driven mechanisms with four cables. In *IEEE Int. Conf. on Robotics and Automation*, pages 1182–1187, Anchorage, May, 3-8, 2010.
- [arsenault2012] Arsenault M. Stiffness analysis of a planar 2-dof cable-suspended mechanism while considering cable mass. In *1st Int. Conf. on cable-driven parallel robots (CableCon)*, Stuttgart, September, 3-4, 2012.
- [artigue89] Artigue F., Amirat M.Y., and Pontnau J. Isoelastic behavior of parallel robots. *Robotica*, 7(4):323–325, 1989.
- [artz2001] Artz B. and others . The design and construction of the visual subsystem for VIRTTEX, the driving simulator at the Ford research laboratories. In *Driving simulation Conf (DSC)*, pages 255–262, Sophia-Antipolis, September, 5-7, 2001.
- [arumugam2004] Arumugam H.K., Voyles R.M, and Bapat S. Stiffness analysis of a class of parallel mechanisms for micro-positioning applications. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Sendai, September 28- October 2, 2004.
- [arun92] Arun V. and others . Determination of the workspace of the 3-dof double-octahedral variable-geometry-truss manipulator. In *22nd Biennial Mechanisms Conf.*, pages 493–500, Scottsdale, September, 13-16, 1992.
- [asada85] Asada H. and Granito C. Kinematic and static characterization of wrist joints and their optimal design. In *IEEE Int. Conf. on Robotics and Automation*, pages 244–250, St Louis, March, 25-28, 1985.
- [ashiththshyam2018] Ashith Shyam R.B. and Ghosal A. Path planning of a 3-upu wrist manipulator for sun tracking in central receiver tower systems. *Mechanism and Machine Theory*, 119:130–141, 2018.
- [assal2011] Assal S.F.M. Learning multiple solution branches for the direct kinematics of parallel manipulators. In *IEEE Int. Conf. on Mechatronics*, Istanbul, April, 13-15, 2011.
- [assal2012] Assal S.F.M. Self-organizing approach for learning the forward kinematic multiple solutions of parallel manipulators. *Robotica*, 30(6):951–961, September 2012.
- [assal2017] Assal S.F.M. A novel planar parallel manipulator with high orientation capability for a hybrid machine tool: kinematics, dimensional synthesis and performance evaluation. *Robotica*, 35:1031–1053, 2017.
- [assomou2013] Assomou Nzue R-M. and others . Comparison of serial and parallel robot repeatability based on different performance criterion. *Mechanism and Machine Theory*, 61:136–155, March 2013.
- [astanin2000] Astanin V.O. and Usov V.V. Multi-objective synthesis of machining center configurations with parallel structure kinematics. In *2nd Chemnitzer Parallelkinematik Seminar*, pages 299–312, Chemnitz, April, 12-13, 2000.
- [astanin2002] Astanin V.O. and others . The modeling and optimization of hexapod layout. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 189–195, Chemnitz, April, 23-25, 2002.
- [atarod2014] Atarod M. and others . A novel testing platform for assessing knee joint mechanics: a parallel robotic system combined with an instrumented spatial linkage. *Annals of Biomedical Engineering*, 42(5):1121–1132, May 2014.
- [austad87] Austad A. Arm device, June, 4, 1987. **Keywords:** mechanical architecture, 5 dof robot, patent.
- [avci2014] Avci E. and others . Vibration control of 3P(S)<sub>4</sub> class parallel mechanisms for high speed applications using quantitative feedback design. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Chicago, September, 14-18, 2014.
- [awais2018] Awais M. and others . Real-time vision-based localization of planar cable-driven parallel robot. In *18th International Conference on Control, Automation and Systems (ICCAS)*, Gangwon, October, 17-20, 2018.
- [awtar2007] Awtar S. and Slocum A.H. Constraint-based design of parallel kinematic XY flexure mechanisms. *ASME J. of Mechanical Design*, 129(8):816–830, August 2007.
- [axehill2014] Axehill J.W. and others . Estimation-based ILC applied to a parallel kinematic robot. *Control Eng. Practice*, 33:1–9, 2014.

- [ayas2017] Ayas M.S. and Altas I.K. Fuzzy logic based adaptive admittance control of a redundantly actuated ankle rehabilitation robot. *Control Eng. Practice*, 59:44–54, 2017.
- [azar-at2019] Azar A.T. and others . Neuro-fuzzy system for 3-dof parallel robot manipulator. In *Novel Intelligent and Leading Emerging Sciences Conference (NILES)*, 2019.
- [azar2016] Azar W.A., Akbarimajd A., and Parvari E. Intelligent control method of a 6-dof parallel robot used for rehabilitation treatment in lower limbs. *Automatika*, 57(2):466–476, 2016.
- [azizian2012] Azizian K. and Cardou P. The constant orientation dimensional synthesis of planar cable-driven parallel mechanisms through convex relaxation. In *1st Int. Conf. on cable-driven parallel robots (CableCon)*, Stuttgart, September, 3-4, 2012.
- [azizian2012-phd] Azizian K. *Optimum-synthesis methods for cable-driven parallel mechanisms*. Ph.D. Thesis, Université Laval, Québec, 2012. **Keywords:** wire robot,optimal design,workspace.
- [azizian2013] Azizian K. and Cardou P. The dimensional synthesis of spatial cable-driven parallel mechanisms. *J. of Mechanisms and Robotics*, 5(4), November 2013.
- [babaghasabha2014] Babaghasabha R., Khosravi M.A., and Taghirad H.M. Adaptive control of KNTU planar cable-driven parallel robot with uncertainties in dynamic and kinematic parameters. In *2nd Int. Conf. on cable-driven parallel robots (CableCon)*, pages 145–159, Duisburg, August, 24-27, 2014.
- [babaghasabha2015] Babaghasabha R., Khosravi M.A., and Taghirad H.M. Adaptive robust control of fully constrained cable driven parallel robot. *Mechatronics*, 25:27–36, 2015.
- [bachta2009] Bachta W. and others . Cardioclock2: Parallel singularities for the design of an active heart stabilizer. In *IEEE Int. Conf. on Robotics and Automation*, pages 3839–3844, Kobe, May, 14-16, 2009.
- [baczynski2009] Baczynski M. and Baczynski J. The kinematics problems of 9 dof cable driven robotic crane. In *7th IEEE International Conference on Industrial Informatics*, pages 686–689, 2009.
- [baczynski2010] Baczynski J. and Baczynski M. Simple system for determining starting position of cable-driven manipulator. In *IEEE Int. Conf. on Computer Information Systems and Industrial Management Applications (CISIM)*, pages 102–106, Cracow, October, 8-10, 2010.
- [badano94] Badano F. and others . Evaluation of exploration strategies in robotic assembly. In *IFAC Symp. on Robot Control, Syroco*, pages 63–68, Capri, September, 19-21, 1994.
- [badano95] Badano F. and others . Random exploration strategy: a new paradigm in robotics. A comparison with determinist approaches. *Control Eng. Practice*, 3(9):1301–1306, 1995.
- [badescu2002] Badescu M., Morman J., and Mavroidis C. Workspace optimization of 3-UPU parallel platforms with joint constraints. In *IEEE Int. Conf. on Robotics and Automation*, pages 3678–3683, Washington, May, 11-15, 2002.
- [badescu2002-1] Badescu M., Morman J., and Mavroidis C. Workspace optimization of orientational 3-legged UPS parallel platforms. In *ASME Design Engineering Technical Conference*, Montréal, September 29- October 2, 2002.
- [badescu2004] Badescu M. and Mavroidis C. Workspace optimization of 3-legged UPU and UPS parallel platforms with joint constraints. *ASME J. of Mechanical Design*, 126(2):291–300, March 2004.
- [badi2017] Badi A. and others . Inverse kinematics for a novel rehabilitation robot for lower limbs. In *3rd Int. Conf. on cable-driven parallel robots (CableCon)*, Québec, 2017.
- [bahrami2011] Bahrami A. and Bahrami M.N. Multi-objective design of spatial cable robots. In *IASTED International Conference Robotics (Robo 2011)*, Pittsburgh, 2011.
- [bahrami2011-1] Bahrami A. and Bahrami M.N. Optimal design of a spatial four cable driven parallel manipulator. In *IEEE International Conference on Robotics and Biomimetics*, Phuket, 2011.
- [bahrami2012] Bahrami A., Aghbali B., and Bahrami M.N. Design optimization of a 3-d three cable driven manipulator. In *ASME DETC*, Chicago, 2012.

- [bai2001] Bai S. and others . Workspace analysis of a parallel manipulator with one redundant dof for skull-base surgery. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Maui, Hawaii, October 29- November 3, 2001.
- [bai2003] Bai S. and Teo M.Y. Kinematic calibration and pose measurement of a medical parallel manipulator by optical position sensors. *J. of Robotic Systems*, 20(4):201–209, 2003.
- [bai2007] Bai S. and Hansen M.R. Modelling of a spherical robotic wrist with euler parameters. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [bai2009] Bai S., Hansen M.R., and Angeles J. A robust forward-displacement analysis of spherical parallel robot. *Mechanism and Machine Theory*, 44(12):2204–2216, December 2009.
- [bai2009-1] Bai S., Hansen M.R., and Andersen T.O. Modelling of a special class of spherical parallel manipulators with euler parameters. *Robotica*, 27(2):161–170, March 2009.
- [bai2010] Bai S. Optimum design of spherical parallel manipulators for a prescribed workspace. *Mechanism and Machine Theory*, 45(2):200–211, February 2010.
- [baigorri2002] Baigorri H.J. Machine for machining large parts, September, 19, 2002. WIPO Patent n° WO 02/072308, A1. **Keywords:** machine-tool,patent.
- [baigunchekov2005] Baigunchekov Zh. and others . Kinematic synthesis of positioning parallel manipulator with functionally independent drives by quadratic approximation. In *Computational Kinematics*, Cassino, May, 4-6, 2005.
- [baigunchekov2007] Baigunchekov Zh. and others . The new parallel manipulator with 6 degree-of-freedom. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [bailey99] Bailey R.P.S. Mechanical manipulator, January, 12, 1999. United States Patent n° 5,857,815. **Keywords:** mechanical architecture,6 dof robot,patent.
- [bak2016] Bak J-H. and others . Sliding-mode control of cable-driven parallel robots with elastic cables. In *16th International Conference on Control, Automation and Systems (ICCAS)*, Gyeongju, October, 16-19, 2016.
- [baker80] Baker J.E. An analysis of the Bricard linkages. *Mechanism and Machine Theory*, 15(4):267–286, 1980.
- [baker95] Baker J.E. On the 6-hinge loops in Bricard’s line-symmetric and plane-symmetric octahedra. In *9th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 1494–1498, Milan, August 30- September 2, 1995.
- [baker2002] Baker J.E. On closure modes and singular configurations of kinematic chains. In *ARK*, pages 175–182, Caldes de Malavalla, June 29- July 2, 2002.
- [baklouti2017] Baklouti S., Caro S., and Courteille E. Dynamic and oscillatory motions of cable-driven parallel robots based on a non-linear cable tension model. *J. of Mechanisms and Robotics*, 9, September 2017.
- [baklouti2017-1] Baklouti S., Caro S., and Courteille E. Sensitivity analys of the elasto-geometrical model of cable-driven parallel robot. In *3rd Int. Conf. on cable-driven parallel robots (CableCon)*, Québec, 2017.
- [baklouti2018] Baklouti S., Caro S., and Courteille E. Elasto-dynamic model-based control of non redundant cable-driven parallel robot. In *RoManSy*, Nantes, June, 25-28, 2018.
- [baklouti2018-phd] Baklouti S. *Vibration analysis and reduction of cable-driven parallel robots*. Ph.D. Thesis, Insa Rennes, Rennes, December, 11, 2018. **Keywords:** wire robot,vibration,control.
- [balan2007] Balan R. and others . Integration of microcontroller system design in mechatronic education- Low cost solutions. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [balchanowski2016] Balchanowski J. General method of structural synthesis of parallel mechanisms. *Archive of Civil and Mechanical Engineering*, 10, 2016.

- [bamberger2004] Bamberger H. and Shoham M. A new configuration of a six degrees-of-freedom parallel robot for mems fabrication. In *IEEE Int. Conf. on Robotics and Automation*, pages 4545–4550, New Orleans, April, 28-30, 2004.
- [bamberger2006] Bamberger H., Shoham M., and Wolf A. Kinematics of micro planar parallel robot comprising large joint clearances. In *ARK*, pages 75–84, Ljubljana, June, 26-29, 2006.
- [bamberger2007] Bamberger H., Wolf A., and Shoham M. Architectures of translational parallel mechanism for MEMS fabrication. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [bamberger2008] Bamberger H., Wolf A., and Shoham M. Architectures of translational parallel mechanism for MEMS fabrication. *ASME J. of Mechanical Design*, 130(8), August 2008.
- [bamdad2012] Bamdad M. Time-energy optimal trajectory planning of cable-suspended manipulators. In *1st Int. Conf. on cable-driven parallel robots (CableCon)*, Stuttgart, September, 3-4, 2012.
- [bamdad2015] Bamdad M., Taheri F., and Abtahi N. Dynamic analysis of a hybrid cable-suspended planar manipulator. In *IEEE Int. Conf. on Robotics and Automation*, Seattle, May, 26-30, 2015.
- [bande2005] Bande P. and others . Kinematics analysis of Dodekapod. *Mechanism and Machine Theory*, 40(6):740–756, June 2005.
- [bandyopadhyay2004] Bandyopadhyay S. and Ghosal A. Analysis of configuration space singularities of closed-loop mechanisms and parallel manipulators. *Mechanism and Machine Theory*, 39(5):519–544, May 2004.
- [bandyopadhyay2007] Bandyopadhyay S. and Ghosal A. An algebraic formulation of exact force-,moment-isotropy in spatial parallel manipulators. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [bandyopadhyay2008] Bandyopadhyay S. and Ghosal A. An algebraic formulation of kinematic isotropy and design of isotropic 6-6 Stewart platform manipulator. *Mechanism and Machine Theory*, 43(5):591–616, May 2008.
- [bandyopadhyay2009] Bandyopadhyay S. and Ghosal A. An algebraic formulation of static isotropy and design of statically isotropic 6-6 Stewart platform manipulators. *Mechanism and Machine Theory*, 44(7):1360–1370, 2009.
- [bannwart2019] Bannwart M. and others . Robotic body weight support enables safe stair negotiation in compliance with basic locomotor principles. *J. of NeuroEngineering and Rehabilitation*, 16(157), 2019.
- [bannwart2020] Bannwart M. and others . Mediolateral damping of an overhead body weight support system assists stability during treadmill walking. *J. of NeuroEngineering and Rehabilitation*, 17(108), 2020.
- [baokun2013] Baokun L. and others . Position-singularity analysis of a special class of the Stewart parallel mechanism with two dissimilar semi-symmetrical hexagons. *Robotica*, 31(1):123–136, January 2013.
- [baradat2008] Baradat C. and others . Design and prototyping of a new balancing mechanism for spatial parallel manipulators. *ASME J. of Mechanical Design*, 130(7):072305–1–072305–13, July 2008.
- [baran2019] Baran E.A. and others . Unified kinematics of prismatically actuated parallel Delta robots. *Robotica*, 37:1513–1532, 2019.
- [barbazza2017] Barbazza L. and others . Trajectory planning of a suspended cable driven parallel robot with reconfigurable end effector. *Robotics and Computer-Integrated Manufacturing*, 48(6):1–11, 2017.
- [baret78] Baret M. Six degrees of freedom large motion system for flight simulators, piloted aircraft environment simulation techniques. In *AGARD Conference Proceeding n°249, Piloted aircraft environment simulation techniques*, pages 22–1/22–7, Bruxelles, April, 24-27, 1978.
- [barhaghtalab2016] Barhaghtalab M.H. and others . On the design of the robust neuro-adaptive controller for cable-driven parallel robots. *Automatika*, 57(3):724–735, 2016.
- [barnett2015] Barnett E. and Gosselin C. Large-scale 3d printing with a cable-suspended robot. *Additive Manufacturing*, 7:27–44, July 2015.

- [barnfather2017] Barnfather J.D., Goodfellow M.J., and T. Abram. Positional capability of a hexapod robot for machining applications. *The International Journal of Advanced Manufacturing Technology*, 89:1103–1111, 2017.
- [barnfather2018] Barnfather J.D., Goodfellow M.J., and T. Abram. Achievable tolerances in robotic feature machining operations using a low-cost hexapod. *The International Journal of Advanced Manufacturing Technology*, 95:1421–1436, 2018.
- [baron-n2020] Baron N., Philippides A., and Rojas N. A robust geometric method of singularity avoidance for kinematically redundant planar parallel robot manipulators. *Mechanism and Machine Theory*, 151, 2020.
- [baron-n2021] Baron N., Philippides A., and Rojas N. A dynamically balanced kinematically redundant planar parallel robot. *ASME J. of Mechanical Design*, 143(8), August 2021.
- [baron-n2018] Baron N., Philippides A., and Rojas N. A geometric method of singularity avoidance for kinematically redundant planar parallel robot. In *ARK*, Bologna, July, 1-5, 2018.
- [baron94] Baron L. and Angeles J. The measurement subspaces of parallel manipulators under sensor redundancy. In *ASME Design Automation Conf.*, pages 467–474, Minneapolis, September, 11-14, 1994.
- [baron95] Baron L. and Angeles J. The isotropic decoupling of the direct kinematic of parallel manipulators under sensor redundancy. In *IEEE Int. Conf. on Robotics and Automation*, pages 1541–1546, Nagoya, May, 25-27, 1995.
- [baron97-phd] Baron L. *Contributions to the estimation of rigid-body motion under sensor redundancy*. Ph.D. Thesis, McGill University, Montréal, February 1997. **Keywords:** forward kinematics with redundant sensors.
- [baron98] Baron L. and Angeles J. The on-line direct kinematics of parallel manipulators using joint-sensor redundancy. In *ARK*, pages 127–136, Strobl, June 29- July 4, 1998.
- [baron98-1] Baron L. and Angeles J. The hip-joint measurement subspaces of parallel manipulators under joint-sensor redundancy. In *12th RoManSy*, pages 61–68, Paris, July, 6-9, 1998.
- [baron2000] Baron L. and Angeles J. The kinematic decoupling of parallel manipulators using joint-sensor data. *IEEE Trans. on Robotics and Automation*, 16(6):644–651, December 2000.
- [baron2000-1] Baron L. and Angeles J. The direct kinematics of parallel manipulators under joint-sensor redundancy. *IEEE Trans. on Robotics and Automation*, 16(1):12–19, February 2000.
- [baron2001] Baron L. and Bernier G. The design of parallel manipulators of Star topology under isotropic constraint. In *ASME Design Engineering Technical Conference*, Pittsburgh, September, 9-12, 2001.
- [baron2002] Baron L., Wang X., and Cloutier G. The isotropic conditions of parallel manipulators of Delta topology. In *ARK*, pages 357–366, Caldes de Malavalla, June 29- July 2, 2002.
- [barrette2005] Barrette G. and Gosselin C. Determination of dynamic workspace of cable-driven planar parallel mechanisms. *ASME J. of Mechanical Design*, 127(2):242–248, March 2005.
- [barroso2018] Barroso A.R. and others . Smooth path planner for dynamic simulators based on cable-driven parallel robots. In *Int. Conf. on Smart Systems and Technologies (SST)*, 2018.
- [basu97] Basu D. and Ghosal A. Singularity analysis of platform-type multi-loop spatial mechanisms. *Mechanism and Machine Theory*, 32(3):375–389, April 1997.
- [bauma2006] Bauma V. and others . Increase of PKM positioning accuracy by redundant measurement. In *5th Chemnitzer Parallelkinematik Seminar*, pages 547–564, Chemnitz, April, 25-26, 2006.
- [baumann97] Baumann R., Maeder W., Glauser D., and Clavel R. The Pantoscope: a spherical remote-center-of-motion parallel manipulators for force reflection. In *IEEE Int. Conf. on Robotics and Automation*, pages 718–723, Albuquerque, April, 21-28, 1997.
- [baumli2013] Baumli N. and others . Design and analysis of PKM robots for ultra fast blanking. In *IEEE ISR*, 2013.
- [bayani2014] Bayani H. and others . On the determination of the maximal inscribed ellipsoid in the wrench-feasible workspace of the cable-driven parallel robots. In *2nd RSI/ISM International Conference on Robotics and Mechatronics*, Teheran, October, 15-17, 2014.

- [bayani2016] Bayani H., Masouleh M.T., and Kalhor A. An experimental study on the vision-based control and identification of planar cable-driven parallel robots. *Advanced Robotics*, 75:187–202, 2016.
- [bayaziz2005] Bayaziz O.B., Xie D., and Anamato N.M. Iterative relaxation of constraints: a framework for improving automated motion planning. In *IEEE Int. Conf. on Robotics and Automation*, Barcelona, April, 19-22, 2005.
- [beberek2013] Bebrek O., Hwang M.Y., and Cavusoglu M.C. Design of a parallel robot for needle-based interventions on small animals. *IEEE/ASME Trans. on Mechatronics*, 18(1), February 2013.
- [beck86] Beck A.S. and McCloy D. A comparative study of the power requirement of several basic robot designs. In *16th Int. Symp. on Industrial Robot designs*, pages 77–86, Bruxelles, August 30- September 2, 1986.
- [becker-o-2003] Becker O., Pietsch I., and Hesselbach J. Robust joint-space control of 6 dof parallel robot with hydraulic actuators. In *RAAD*, Cassino, May, 7-10, 2003.
- [becker94] Becker M. and others . The kinematics of a parallel wrist with actuation redundancy. In *ISRAM*, pages 405–410, Hawai, August, 15-17, 1994.
- [bedoustani2010] Bedoustani Y.B. and Taghirad H.D. Iterative-analytic redundancy resolution scheme for a cable-driven redundant parallel manipulator. In *IEEE/ASME Int. Conf. on Advanced Intelligent Mechatronics*, Montréal, July, 6-9, 2010.
- [bedoustani2011] Bedoustani Y.B. and others . Lagrangian dynamics of cable-driven parallel manipulators: a variable mass formulation. *Trans. CSME*, 35(4):529–542, 2011.
- [beer2008] Beer R.F and others . Development and evaluation of a gravity compensated training environment for robotic rehabilitation of post-stroke reaching. In *IEEE/RAS-EMBS International Conference on Biomedical Robotics and Biomechatronics*, Scottsdale, October, 19-22, 2008.
- [beer2008-1] Beer R.F and others . Technical evaluation of the MACARM: A cable robot for upper limb neurorehabilitation. In *IEEE/RAS-EMBS International Conference on Biomedical Robotics and Biomechatronics*, Scottsdale, October, 19-22, 2008.
- [begey2019] Begey J. and others . Dynamic control of parallel robot driven by flexible cables and actuated by position-controlled winches. *IEEE Trans. on Robotics*, 35(1):286–293, February 2019.
- [begey2020] Begey J. *Analyse, conception et commande de manipulateurs tensegrité*. Ph.D. Thesis, Université de Strasbourg, Strasbourg, November, 25, 2020. **Keywords:** tensegrity.
- [begon94] Bégon P., Fraisse P., Pierrot F., and Dauchez P. Variable structure control stabilized by high-frequency oscillations: theory-simulation-experiments. *Laboratory Robotic and Automation*, 6(6):283–292, December 1994.
- [begon95] Bégon P. *Commande des robots parallèles rapides. Application au robot HEXA*. Ph.D. Thesis, Université Montpellier II, Montpellier, June, 23, 1995. **Keywords:** kinematics, control.
- [begon95-1] Bégon P., Pierrot F., and Dauchez P. Insertions rapides avec un robot parallèle à six degrés de liberté. *Revue d'Automatique et de Productique Appliquée*, 8(4):513–528, 1995.
- [begon95-2] Bégon P., Pierrot F., and Dauchez P. Fuzzy sliding mode control of a fast parallel robot. In *IEEE Int. Conf. on Robotics and Automation*, Nagoya, May, 25-27, 1995.
- [behi88] Behi F. Kinematic analysis for a six-degree-of-freedom 3-PRPS parallel mechanism. *Int. J. of Robotics and Automation*, 4(5):561–565, October 1988.
- [behi90] Behi F., Mehregany M., and Gabriel K.J. A microfabricated three-degree-of-freedom parallel mechanism. In *IEEE Micro Electro Mechanical Workshop*, pages 159–165, Napa Valley, February, 11-14, 1990.
- [behzadipour2004] Behzadipour S. and Khajepour A. Design of reduced dof parallel cable-based robots. *Mechanism and Machine Theory*, 39(10):1051–1065, October 2004.
- [behzadipour2005] Behzadipour S. and Khajepour A. A new cable-based parallel robot with three degrees of freedom. *Multibody System Dynamics*, 13:371–383, 2005.

- [behzadipour2006] Behzadipour S. and Khajepour A. *Industrial Robotics: Theory, Modelling and Control*, chapter Cable-based Robot Manipulators with Translational Degrees of Freedom, pages 211–236. Pro Literatur Verlag, Germany / ARS, Austria, Germany, December 2006. **Keywords:** wire robot, 3 dof robot, planar robot.
- [behzadipour2007] Behzadipour S. and Azadi Sohi M. Antagonistic stiffness in cable-driven mechanisms. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [behzadipour2007-1] Behzadipour S. and Khajepour A. *Industrial robotics. Theory, Modeling and Control*, chapter Cable based robot manipulators with translational degrees of freedom, pages 211–236. pro literatur Verlag, January 2007. **Keywords:** ,wire robot, 3 dof robot, mechanical architecture, planar robot, hybrid robot.
- [beiranvand2021] Beiranvand A., Kalhor A., and Tale Masouleh M. Modeling, identification and minimum length integral sliding mode control of a 3-dof cartesian parallel robot by considering virtual flexible links. *Mechanism and Machine Theory*, 157, 2021.
- [beji96] Beji L. and others . Non linear control of a parallel robot including motor dynamics. In *11th RoManSy*, pages 45–52, Udine, July, 1-4, 1996.
- [beji97-phd] Beji L. *Modélisation, identification et commande d’un robot parallèle*. Ph.D. Thesis, Université Evry Val d’Essonne, Evry, 1997. **Keywords:** mechanical architecture, control.
- [belda2006] Belda K. and Böhm J. Predictive control of redundant parallel robot and trajectory planning. In *5th Chemnitzer Parallelkinematik Seminar*, pages 497–514, Chemnitz, April, 25-26, 2006.
- [bellakehal2011] Bellakehal S. and others . Vision/force control of parallel robots. *Mechanism and Machine Theory*, 46:1376–1395, 2011.
- [bellido90] Bellido A., Dedieu J-P., and Yakoubsohn J-C. Combien existe-t-il d’octaèdres dont les longueurs des arêtes sont données? In *Séminaire INRIA sur les robots parallèles*, Sophia-Antipolis, February 1990.
- [belzile2020] Belzile B., Eskandary P.K., and Angeles J. Workspace determination and feedback control of a pick-and-place parallel robot: analysis and experiments. *IEEE Robotics and Automation Letters*, 5(1), 2020.
- [benabdallah2018] Ben Abdallah F. and others . Modeling and control of an aerial robocrane using a wire driven system. In *Annual American Control Conference (ACC)*, Milwaukee, June, 27-29, 2018.
- [benali99] Benali A., Richard P., and Bidaud P. Design, control and evaluation of a six DOF force feedback interface for virtual reality applications. In *IEEE Int. Workshop on Robot and Human Interaction*, pages 338–343, Pisa, September, 27-29, 1999.
- [benea96] Bénéa R. and Giordano M. Dynamical simulation for a parallel manipulator applied to the 6-RKS structure. In *27th Int. Symp. on Industrial Robots (ISIR)*, pages 689–694, Milan, October, 6-8, 1996.
- [benea96-phd] Bénéa R. *Contribution à l’étude des robots pleinement parallèles de type 6R-RR-S*. Ph.D. Thesis, Université de Savoie, Annecy, December, 16, 1996. **Keywords:** mechanical architecture, workspace, singularity, dynamics, statics, mobility.
- [bengoa2015] Bengoa P. and others . A stable model-based control scheme for parallel robots using additional sensors. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Hamburg, Germany, September 28- October 2, 2015.
- [benhamida2020] Ben Hamida I. and others . Dimensional synthesis and performance evaluation of four translational parallel manipulators. *Robotica*, 39(2):233–249, 2020.
- [benhamida2021] Ben Hamida I. and others . Multi-objective optimal design of a cable driven parallel robot for rehabilitation tasks. *Mechanism and Machine Theory*, 156, 2021.
- [benhorin96] Ben-Horin R. and Shoham M. Construction of a new type of a six-degrees-of-freedom parallel manipulator with three planarly actuated links. In *ASME Design Engineering Technical Conference*, pages 96–DETC/MECH–1561, Irvine, August, 18-22, 1996.
- [benhorin98] Ben-Horin R., Shoham M., and Djerassi S. Kinematics, dynamics and construction of a planarly actuated parallel robot. *Robotics and Computer-Integrated Manufacturing*, 14(2):163–172, April 1998.



- [benhorin2005] Ben-Horin R. and Shoham M. Singularity analysis of a class of parallel robots based on Grassmann-Cayley algebra. In *Computational Kinematics*, Cassino, May, 4-6, 2005.
- [benhorin2006] Ben-Horin R. and Shoham M. Singularity of a class of Gough-Stewart platforms with three concurrent joints. In *ARK*, pages 265–274, Ljubljana, June, 26-29, 2006.
- [benhorin2006-1] Ben-Horin R. and Shoham M. Singularity analysis of a class of parallel robots based on Grassmann-Cayley algebra. *Mechanism and Machine Theory*, 41(8):958–970, August 2006.
- [benhorin2006-2] Ben-Horin R. and Shoham M. Singularity condition of six-degree-of-freedom three-legged parallel robot based on Grassmann-Cayley algebra. *IEEE Trans. on Robotics*, 22(4):577–590, August 2006.
- [benhorin2006-3] Ben-Horin R. and others . Dynamics of a six degrees-of-freedom parallel robot actuated by three two-wheel carts. *Multibody System Dynamics*, 16(2):105–121, September 2006.
- [benhorin2007] Ben-Horin R. and Shoham M. Singularity of Gough-Stewart platforms with collinear joints. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [benhorin2008] Ben-Horin P. and others . Singulab. a graphical user interface for the singularity analysis of parallel robots based on Grassmann-Cayley algebra. In *ARK*, pages 49–58, Batz/mer, June, 23-26, 2008.
- [benhorin2008-1] Ben-Horin R. and Shoham M. A class of parallel robot practically free of singularities. *ASME J. of Mechanical Design*, 130(5):052303-1/9, May 2008.
- [benhorin2009] Ben-Horin R. and Shoham M. Application of Grassmann Cayley algebra to geometrical interpretation of parallel robot singularities. *Int. J. of Robotics Research*, 28(1):127–141, January 2009.
- [bennehar2014] Bennehar M., Chemori A., and Pierrot F. A novel RISE-based adaptive feedforward controller for redundantly actuated parallel manipulators. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Chicago, September, 14-18, 2014.
- [bennehar2015-phd] Bennehar M. *Some contributions to nonlinear adaptive control of PKMs: from design to real-time experiments*. Ph.D. Thesis, Université de Montpellier, Montpellier, December, 17, 2015. **Keywords:** control.
- [bennehar2018] Bennehar M., Chemori A., Bourri M., Jenni L-F., and Pierrot F. A new RISE-based adaptive control of PKMs: design, stability analysis and experiments. *Int. J. of Control*, 91(3):593–607, 2018.
- [bennour2011] Bennour S., Harshe M., Romdhane L., and Merlet J-P. A robotic application for analysis and control of human motion. In *4eme Congrès International Conception et Modélisation des Systèmes Mécaniques CMSM*, Sousse, May 30- June 1, 2011.
- [bennour2011-1] Bennour S., Romdhane L., Merlet J-P., and Harshe M. Nouvelle machine robotisée à base d’une plateforme à câbles pour la rééducation fonctionnelle. In *20ème Congrès Français de Mécanique*, Besancon, August 28- September 2, 2011.
- [bennour2011-2] Bennour S., Harshe M., Romdhane L., and Merlet J-P. A new experimental setup based on a parallel cable robot for analysis and control of human motion. *Computer Methods in Biomechanics and Biomedical Engineering*, 14(Supplement 1):83–85, August 2011.
- [bennour2012-phd] Bennour S. *Contribution au Développement d’une Plateforme Robotisée pour la Rééducation Fonctionnelle*. Ph.D. Thesis, Ecole Nationale d’Ingénieurs de Monastir, Monastir, February 2012. **Keywords:** wire robot, medical.
- [bensghaier2005] Ben Sghaier A. and Romdhane L. A software package for parallel mechanisms modeling and simulation. In *Computational Kinematics*, Cassino, May, 4-6, 2005.
- [bentaleb2020] Bentaleb T. and Iqbal J. On the improvement of calibration accuracy of parallel robots -modeling and optimization. *Journal of Theoretical and Applied Mechanics*, 58(1), 2020.
- [benyahia2021] Ben Yahia I., Merlet J-P., and Papegay Y. Mixing neural networks, Newton method and interval analysis for the kinematics of cable-driven parallel robots with sagging cables. In *ICAR*, Ljubljana, 2021.
- [berger2004] Berger K.T., Horta L.G., and Taleghani B.K. Static testing of an inflatable/rigidizable hexapod structure. In *45th AIAA Structures, Structural Dynamics and Material Conf.*, Palm-Spring, April, 19-22, 2004.

- [bernelli95] Bernelli-Zazzera F. and Gallieni D. Analysis and design of an hexapod mechanism for autonomous payload pointing. In *46th IAF Congress*, Oslo, October, 2-6, 1995.
- [bernier95] Bernier D., Castelain J-M., and Li X. A new parallel structure with six degree of freedom. In *9th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 8–12, Milan, August 30- September 2, 1995.
- [bernstein2013] Bernstein N., Lawrence D., and Pao L. Dynamic modeling for parallel haptic interfaces with for sensing and control. *IEEE Trans. on Haptics*, 6(4):429–439, - December 2013.
- [berthomieu89-phd] Berthomieu T. *Étude d'un micro-manipulateur parallèle et de son couplage avec un robot porteur*. Ph.D. Thesis, ENSTAE, Toulouse, January, 24, 1989. **Keywords:** kinematics,dynamics,workspace,mechanical architecture,actuators,6 dof robot,pneumatic,hardware,force feedback,micro-macro robot,singularity,force sensor,orientation workspace.
- [berti2012] Berti A., Merlet J-P., and Carricato M. Solving the direct geometrico-static problem of the 3-3 cable-driven parallel robots by interval analysis: preliminary results. In *1st Int. Conf. on cable-driven parallel robots (CableCon)*, pages 251–268, Stuttgart, September, 3-4, 2012.
- [berti2014] Berti A., Merlet J-P., and Carricato M. Workspace analysis of redundant cable-suspended parallel robots. In *2nd Int. Conf. on cable-driven parallel robots (CableCon)*, pages 41–54, Duisburg, August, 24-27, 2014.
- [berti2015-phd] Berti A. *Kinematics and statics of cable-driven parallel robots by interval-analysis-based methods*. Ph.D. Thesis, University of Bologna, Bologna, April, 21, 2015. **Keywords:** kinematics,wire robot.
- [berti2016] Berti A., Merlet J-P., and Carricato M. Solving the direct geometrico-static problem of underconstrained cable-driven parallel robots by interval analysis. *Int. J. of Robotics Research*, 35(6):723–739, 2016.
- [besnard98] Besnard S. Etalonnage autonome des manipulateurs parallèles. In *9ème Journées Jeunes Chercheurs en Robotique*, pages 11–15, Clermont-Fd, May, 11-12, 1998.
- [besnard99] Besnard S. and Khalil W. Calibration of parallel robot using two inclinometers. In *IEEE Int. Conf. on Robotics and Automation*, pages 1758–1763, Detroit, May, 10-15, 1999.
- [besnard2000] Besnard S. *Etalonnage géométrique des robots série et parallèles*. Ph.D. Thesis, Université de Nantes, Nantes, September, 21, 2000. **Keywords:** calibration.
- [besnard2001] Besnard S. and Khalil W. Identifiable parameters for parallel robots kinematic calibration. In *IEEE Int. Conf. on Robotics and Automation*, pages 2859–2866, Seoul, May, 23-25, 2001.
- [bessala95] Bessala J., Bidaud P., and Ben Ouezdou F. Analysis of complex mechanical systems through geometrical reachable workspace. In *IASTED Int. Conf. on Robotics and Manufacturing*, Cancun, June, 14-17, 1995.
- [bessala95-1] Bessala J., Bidaud P., and Ben Ouezdou F. Analysis of complex mechanical systems, design, motion, planning, optimal transmissions. In *IMACS Symp. on System Analysis and Simulation*, 1995.
- [bessala95-phd] Bessala J. *Détermination des expressions analytiques d'espaces de travail des systèmes mécaniques, et applications*. Ph.D. Thesis, Université Paris 6, September, 11, 1995. **Keywords:** workspace,optimal design.
- [beyer2002] Beyer L. and Wulfsberg J-P. Calibration of parallel robot with ROSY. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 493–505, Chemnitz, April, 23-25, 2002.
- [beyer2004] Beyer L. and Wulfsberg J. Practical robot calibration with ROSY. *Robotica*, 22(5):505–512, September 2004.
- [bhagat2014] Bhagat U. and others . Design and analysis of a novel flexure-based 3-dof mechanism. *Mechanism and Machine Theory*, 73:173–187, April 2014.
- [bharadwaj2006] Bharadwaj K. and Sugar T.G. Kinematics of a robotic gait trainer for stroke rehabilitation. In *IEEE Int. Conf. on Robotics and Automation*, pages 3492–3497, Orlando, May, 16-18, 2006.
- [bhattacharya95] Bhattacharya S., Hatwal H., and Ghosh A. On the optimum design of a Stewart platform type parallel manipulators. *Robotica*, 13(2):133–140, March - April , 1995.

- [bhattacharya97] Bhattacharya S., Hatwal H., and Ghosh A. An on-line estimation scheme for generalized Stewart platform type parallel manipulators. *Mechanism and Machine Theory*, 32(1):79–89, January 1997.
- [bhattacharya97-1] Bhattacharya S., Nenchev D.N., and Uchiyama M. A singularity-consistent parametrization based direct kinematics algorithm for a class of parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 2671–2676, Albuquerque, April, 21-28, 1997.
- [bhattacharya98] Bhattacharya S., Nenchev D.N., and Uchiyama M. A recursive formula for the inverse of the inertia matrix of a parallel manipulator. *Mechanism and Machine Theory*, 33(7):957–964, October 1998.
- [bhattacharya98-1] Bhattacharya S., Hatwal H., and Ghosh A. Comparison of an exact and an approximate method of singularity avoidance in platform type parallel manipulators. *Mechanism and Machine Theory*, 33(7):965–974, October 1998.
- [bhutani2014] Bhutani G. and T.A. Dwarakanath. Practical feasibility of a high precision 3-UPU parallel mechanism. *Robotica*, 32(3):341–353, May 2014.
- [bhutani2014-1] Bhutani G. and T.A. Dwarakanath. Novel design solution to high precision 3 axes translational parallel mechanism. *Mechanism and Machine Theory*, 75:118–130, May 2014.
- [bi2006] Bi Z.M. and Lang S.Y.T. Forward kinematic solution and its applications for a 3-dof parallel kinematic machine (PKM) with a passive link. *Robotica*, 24(5):549–555, 2006.
- [bi2007] Bi Z.M. and others . Integrated design toolbox for tripod-based parallel kinematic machines. *ASME J. of Mechanical Design*, 129(8):799–807, August 2007.
- [bi2009] Bi Z.M. and Lang S.Y.T. Joint workspace of parallel kinematic machines. *Robotics and Computer-Integrated Manufacturing*, 25(1):57–63, 2009.
- [bi2009-1] Bi Z.M. and Wang L. Optimal design of reconfigurable parallel machining systems. *Robotics and Computer-Integrated Manufacturing*, 25(6):951–961, December 2009.
- [bi2011] Bi Z.M. and Jin Y. Kinematic modeling of Exechon parallel kinematic machine. *Robotics and Computer-Integrated Manufacturing*, 27(1):186–193, February 2011.
- [bier2006] Bier C., Campos A., and Hesselbach J. Direct singularity closeness indexes for the Hexa parallel robot. In *ARK*, pages 239–246, Ljubljana, June, 26-29, 2006.
- [bihari2016] Bihari B. and others . A geometric approach for the workspace analysis of two symmetrical planar parallel manipulator. *Robotica*, 34(4):738–763, April 2016.
- [billette2009] Billette G. and Gosselin C. Producing rigid contacts in cable-driven haptic interfaces using impact generating reels. In *IEEE Int. Conf. on Robotics and Automation*, pages 307–312, Kobe, May, 14-16, 2009.
- [bilton2012] Bilton A.M. and Dubowsky S. Inverse kinematics for the control of hyper-redundant binary mechanisms with application to solar concentrator mirrors. In *ARK*, pages 421–428, Innsbruck, June, 25-28, 2012.
- [binaud2008] Binaud N., Caro S., and Wenger P. Sensitivity analysis of degenerate and non-degenerate planar parallel manipulator. In *2nd European Conf. on Mechanism Science (Eucomes)*, Cassino, September, 17-20, 2008.
- [binaud2009] Binaud N., Caro S., and Wenger P. Sensitivity and dexterity comparison of 3 – RRR planar parallel manipulators. In *Computational Kinematics*, pages 77–84, Duisburg, May, 6-8, 2009.
- [binaud2010] Binaud N., Caro S., and Wenger P. Sensitivity comparison of planar parallel manipulators. *Mechanism and Machine Theory*, 45(11):1477–1490, November 2010.
- [binaud2010-1] Binaud N., Caro S., Bai S., and Wenger P. Comparison of 3 – PPR parallel planar manipulators based on their sensitivity to joint clearances. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Taipei, October, 18-22, 2010.
- [binaud2010-1-phd] Binaud N. *Sensibilité des manipulateurs parallèles aux variations des paramètres géométriques et aux jeux*. Ph.D. Thesis, École Centrale de Nantes, Nantes, December, 13, 2010. **Keywords:** performance analysis, accuracy, clearance.

- [birglen2002] Birglen L. and others . SHaDe, a new 3-dof haptic device. *IEEE Trans. on Robotics and Automation*, 18(2):166–175, April 2002.
- [birlescu2018] Birlescu J. and others . On the singulrities of a parallel robotic system used for elbow and wrist rehabilitation. In *ARK*, Bologna, July, 1-5, 2018.
- [birlescu2022] Birlescu J. and others . A new approach to forward kinematics for a SILS robotic orientation platform based on perturbation theory. In *ARK*, Bilbao, June, 26-30, 2022.
- [black2018] Black C.B., Till J., and Rucker D.C. Parallel continuum robots: Modeling, analysis, and actuation-based force sensing. *IEEE Trans. on Robotics*, 34(1), February 2018.
- [blaise2010] Blaise J. and others . Kinematic characterisation of hexapods for industry. *Industrial Robot*, 37(1):79–88, 2010.
- [blanchard2005] Blanchard L., Falzon F., Dupuis J., and Merlet J-P. Deployable hexapod using tape-springs. In *Disruption in Space, ESA/CNES Symp.*, Marseille, 2005.
- [blanchet2012] Blanchet L. and Merlet J-P. Dimensionnement d’un robot à câbles garantissant une contrainte de précision via le calcul par intervalles des paramètres de conception. In *Journées Scientifiques Robotique et Automatique*, Nantes, France, October 2012.
- [blanchet2014] Blanchet L. and Merlet J-P. Interference detection for cable-driven parallel robots (CDPRs). In *IEEE/ASME Int. Conf. on Advanced Intelligent Mechatronics*, pages 1413–1418, Besancon, July, 8-11, 2014.
- [blanchet2015] Blanchet L. *Contribution à la modélisation de robots à câbles pour leur commande et leur conception*. Ph.D. Thesis, Université de Nice- Sophia Antipolis, Nice, May, 13, 2015. **Keywords:** wire robot,statics,kinematics.
- [bleicher2002] Bleicher F. Optimizing the three-axis machine-tool with parallel kinematic structure. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 883–894, Chemnitz, April, 23-25, 2002.
- [bleicher2006] Bleicher F., Puschitz F., and Theiner A. Laser based measurement system for calibrating machine-tools in 6 DOF. In *5th Chemnitzer Parallelkinematik Seminar*, pages 617–634, Chemnitz, April, 25-26, 2006.
- [boanta2017] Boanta C. and Csiszar A. Optimal design of a parallel structure used as a haptic interface. *Mechanism and Machine Theory*, 116:69–88, 2017.
- [bohigas2010] Bohigas O., Ros L., and Manubens M. A complete method for workspace boundary determination. In *ARK*, pages 329–338, Piran, June 28- July 1, 2010.
- [bohigas2012] Bohigas O. and others . A singularity-free path planner for closed-chain manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 2128–2134, Saint Paul, May, 14-18, 2012.
- [bohigas2012-1] Bohigas O., Manubens M., and Ros L. Planning singularity-free force-feasible paths on the Stewart platform. In *ARK*, pages 245–253, Innsbruck, June, 25-28, 2012.
- [bohigas2012-2] Bohigas O., Manubens M., and Ros L. A complete method for workspace boundary determination of general structure manipulators. *IEEE Trans. on Robotics*, 28(5):903–1006, October 2012.
- [bohigas2012-3] Bohigas O., Manubens M., and Ros L. Navigating the wrench-feasible C-space of cable-driven hexapods. In *1st Int. Conf. on cable-driven parallel robots (CableCon)*, Stuttgart, September, 3-4, 2012.
- [bohigas2012-4] Bohigas O. and others . Numerical computation of manipulator singularities. In *IEEE Int. Conf. on Robotics and Automation*, Saint Paul, May, 14-18, 2012.
- [bohigas2016] Bohigas O., Manubens M., and Ros L. Planning wrench-feasible motions for cable-driven hexapods. *IEEE Trans. on Robotics*, 32(2):442–451, April 2016.
- [bolboli2019] Bolboli J. and others . Stiffness feasible workspace of cable-driven parallel robots with application to optimal design of a planar cable robot. *Robotics and Autonomous Systems*, 114:19–28, 2019.
- [bombin2001] Bombin C., Ros L., and Thomas F. On the computation of the direct kinematics of parallel spherical mechanism using Bernstein polynomials. In *IEEE Int. Conf. on Robotics and Automation*, pages 3332–3337, Seoul, May, 21-26, 2001.

- [bonev99] Bonev J., I.A. and Ryu. Workspace analysis of 6-PRRS parallel manipulators based on the vertex space concept. In *ASME Design Engineering Technical Conference*, Las Vegas, September, 12-15, 1999.
- [bonev99-1] Bonev I.A. and others. A simple new closed-form solution of the direct kinematics using three linear extra sensors. In *IEEE/ASME Int. Conf. on Advanced Intelligent Mechatronics*, pages 526–530, Atlanta, September, 19-23, 1999.
- [bonev99-2] Bonev J., I.A. and Ryu. Orientation workspace analysis of a 6-DOF parallel manipulators. In *ASME Design Engineering Technical Conference*, Las Vegas, September, 12-15, 1999.
- [bonev99-3] Bonev I.A. and others. A simple new closed-form solution of the direct kinematics of parallel manipulators using three linear extra sensors. In *Int. Conf. on Advanced Intelligent Mechatronics*, pages 526–530, Atlanta, September, 19-22, 1999.
- [bonev2000] Bonev J., I.A. and Ryu. A new method for solving the direct kinematics of general 6-6 Stewart platforms using three linear extra sensors. *Mechanism and Machine Theory*, 35(3):423–436, March 2000.
- [bonev2001] Bonev I.A. and Ryu J. A geometrical method for computing the constant-orientation workspace of 6-*Prss* parallel manipulators. *Mechanism and Machine Theory*, 36(1):1–13, 2001.
- [bonev2001-1] Bonev I.A. and Gosselin C.M. Singularity loci of planar parallel manipulators with revolute joints. In F.C. Park C.C. Iurascu, editor, *Computational Kinematics*, pages 291–299. EJCK, May, 20-22, 2001. **Keywords:** planar robot, singularity.
- [bonev2001-2] Bonev I.A. and Ryu J. A new approach to orientation workspace analysis of 6 dof parallel manipulator. *Mechanism and Machine Theory*, 36(1):15–28, January 2001.
- [bonev2001-3] Bonev I.A. Delta parallel robot-the story of success. May, 6, 2001, <http://www.parallemic.org/Reviews/Review002.html>. **Keywords:** history, 3 dof robot.
- [bonev2001-4] Bonev I.A. and Zlatanov D. The mystery of the singular SNU translational parallel robot. June, 12, 2001, [www.parallemic.org/Reviews/Review004.html](http://www.parallemic.org/Reviews/Review004.html). **Keywords:** singularity, 3 dof robot.
- [bonev2001-5] Bonev I.A. and others. A closed-form solution to the direct kinematics of nearly general parallel manipulators with optimally located three linear extra sensors. *IEEE Trans. on Robotics and Automation*, 17(2):148–156, April 2001.
- [bonev2002] Bonev I. and Gosselin C.M. Geometric algorithms for the computation of the constant-orientation workspace and singularity surfaces of a special 6-RUS parallel manipulator. In *ASME Design Engineering Technical Conference*, Montréal, September 29- October 2, 2002.
- [bonev2003] Bonev I.A. The true origins of parallel robots. January, 24, 2003, <http://www.parallemic.org/Reviews/Review007.html>. **Keywords:** history, mechanical architecture.
- [bonev2003-1] Bonev I.A., Zlatanov D., and Gosselin C. Singularity analysis of 3 dof planar mechanisms via screw theory. *ASME J. of Mechanical Design*, 125(3):573–581, September 2003.
- [bonev2005] Bonev I. and Gosselin C.M. Singularity loci of spherical parallel mechanisms. In *IEEE Int. Conf. on Robotics and Automation*, pages 2968–2973, Barcelona, April, 19-22, 2005.
- [bonev2006] Bonev I., Chablat D., and Wenger P. Working and assembly modes of the Agile Eye. In *IEEE Int. Conf. on Robotics and Automation*, pages 2317–2322, Orlando, May, 16-18, 2006.
- [bonev2008] Bonev I.A. Direct kinematics of zero-torsion parallel mechanisms. In *IEEE Int. Conf. on Robotics and Automation*, pages 3851–3856, Pasadena, May, 19-23, 2008.
- [bonnemains2008] Bonnemains T. and others. Definition of a new static model of parallel kinematic machines: highlighting of overconstraint influence. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 2416–2421, Nice, France, September, 22-26, 2008.
- [bonnemains2013] Bonnemains T. and others. Dynamic model of an overconstrained PKM with compliance: the Tripteur X7. *Robotics and Computer-Integrated Manufacturing*, 29(1):180–191, February 2013.

- [borchert2012] Borchert G. and others . Design methodology for a compliant binary actuated parallel mechanism with flexure hinges. In *4th European Conf. on Mechanism Science (Eucomes)*, pages 171–179, Santander, September, 19-21, 2012.
- [borchert2015] Borchert G. and others . Analysis of the mass distribution of a functionally extended Delta robot. *Robotics and Computer-Integrated Manufacturing*, 31:111–120, February 2015.
- [borchert2017] Borchert G. and Raatz A. A new method for combining handling systems with passive orientation devices. *Annals of the CIRP*, 65(1):49–52, 2016.
- [bordalba2017] Bordalba R., Porta J.M., and Ros L. Randomized kinodynamic planning for cable-suspended parallel robots. In *3rd Int. Conf. on cable-driven parallel robots (CableCon)*, Québec, 2017.
- [bordalba2018] Bordalba R., Porta J.M., and Ros L. A singularity-robust LQR controller for parallel robots. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Madrid, October, 1-5, 2018.
- [bordalba2021] Bordalba R., Ros L., and Porta J.M. A randomized kinodynamic planner for closed-chain robotic systems. *IEEE Trans. on Robotics*, 37(1), February 2021.
- [borel08] Borel E. Mémoire sur les déplacements à trajectoire sphériques. *Mémoire présentés par divers savants*, 33(1):1–128, 1908.
- [borgstrom2007] Borgstrom P.H. and others . Discrete trajectory control algorithms for NIMS3D, an autonomous underconstrained three-dimensional cabled robot. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 253–240, San Diego, September, 22-26, 2007.
- [borgstrom2008] Borgstrom P.H. and others . Generation of energy efficient trajectories for NIMS3D, a three-dimensional cabled robot. In *IEEE Int. Conf. on Robotics and Automation*, pages 2222–2227, Pasadena, May, 19-23, 2008.
- [borgstrom2008-1] Borgstrom P.H. and others . Energy based path planning for a novel cabled robotic systems. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 1745–1751, Nice, France, September, 22-26, 2008.
- [borgstrom2009] Borgstrom P.H. and others . Design and implementation of NIMS3D, a 3-D cabled robot for actuated sensing applications. *IEEE Trans. on Robotics*, 25(2):325–339, April 2009.
- [borgstrom2009-1] Borgstrom P.H. and others . NIMS-PL: A cable-driven robot with self-calibration capabilities. *IEEE Trans. on Robotics*, 25(5):1005–1015, 2009.
- [borgstrom2009-2] Borgstrom P.H. and others . Rapid computation of optimally safe tension distributions for parallel cable-driven robots. *IEEE Trans. on Robotics*, 25(6):1271–1281, 2009.
- [borgstrom2009-3] Borgstrom P.H. and others . Field-tests of a redundantly actuated cable-driven robot for environmental sampling applications. In *IEEE Conference on Automation Science and Engineering*, Bangalore, August, 22-25, 2009.
- [borras2008] Borràs J., Thomas F., and Torras C. Architecture singularities in flagged parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 3844–3850, Pasadena, May, 19-23, 2008.
- [borras2009] Borràs J. and Thomas F. Kinematics of line-plane subassemblies in Stewart platforms. In *IEEE Int. Conf. on Robotics and Automation*, pages 4094–4099, Kobe, May, 14-16, 2009.
- [borras2009-1] Borràs J., Thomas F., and Torras C. Straightening-free algorithm for the singularity analysis of Stewart-Gough platform with colinear/coplanar attachments. In *Computational Kinematics*, Duisburg, May, 6-8, 2009.
- [borras2010] Borràs J., Thomas F., and Torras C. A family of quadratically-solvable 5-SPU parallel robots. In *IEEE Int. Conf. on Robotics and Automation*, pages 4703–4708, Anchorage, May, 3-8, 2010.
- [borras2010-1] Borràs J., Thomas F., and Torras C. Singularity invariant leg rearrangements in Stewart-Gough platforms. In *ARK*, pages 421–428, Piran, June 28- July 1, 2010.

- [borras2011] Borràs J., Thomas F., and Torras C. Architectural singularities of a class of pentapods. *Mechanism and Machine Theory*, 46(8):1107–1120, August 2011.
- [borras2012] Borràs J. and Dollar A.M. Static analysis of parallel robots with compliant joints for in-hand manipulation. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 3086–3091, Vilamoura, October, 7-12, 2012.
- [borras2012-1] Borràs J. and Thomas F. On the primal and dual forms of the Stewart platform pure condition. *IEEE Trans. on Robotics*, 28(6):1205–1215, December 2012.
- [borras2013] Borràs J. and Dollar A. A parallel robots framework to study precision grasping and dexterous manipulation. In *IEEE Int. Conf. on Robotics and Automation*, pages 1587–1593, Karlsruhe, May, 6-10, 2013.
- [borras2014] Borràs J., Thomas F., and Torras C. New geometric approaches to the analysis and design of Stewart–Gough platforms. *IEEE/ASME Trans. on Mechatronics*, 19(2):445–455, 2014.
- [bortone2018] Bortone I. and others . Wearable haptics and immersive virtual reality rehabilitation training in children with neuromotor impairments. *IEEE Trans. on Neural Systems and Rehabilitation Engineering*, 26(7), July 2018.
- [boschetti2014] Boschetti G. and Trevisani A. Performance evaluation for cable direct driven robot. In *12th Biennial Conference on Engineering Systems Design and Analysis*, Copenhagen, July, 25-27, 2014.
- [boschetti2017] Boschetti G. and others . A fast algorithm for wrench exertion capability computation. In *3rd Int. Conf. on cable-driven parallel robots (CableCon)*, Québec, 2017.
- [bosscher2003] Bosscher P. and Ebert-Uphoff I. A novel mechanism for implementing multiple collocated spherical joints. In *IEEE Int. Conf. on Robotics and Automation*, pages 336–341, Taipei, September, 14-19, 2003.
- [bosscher2004] Bosscher P. and Ebert-Uphoff I. Wrench-based analysis of cable-driven robots. In *IEEE Int. Conf. on Robotics and Automation*, pages 4950–4955, New Orleans, April, 28-30, 2004.
- [bosscher2004-1] Bosscher P. and Ebert-Uphoff I. A stability measure for underconstrained cable-driven robots. In *IEEE Int. Conf. on Robotics and Automation*, pages 4943–4949, New Orleans, April, 28-30, 2004.
- [bosscher2006] Bosscher P. and Ebert-Uphoff I. Disturbance robustness measures for underconstrained cable-driven robots. In *IEEE Int. Conf. on Robotics and Automation*, pages 4206–4212, Orlando, May, 16-18, 2006.
- [bosscher2006-1] Bosscher P. and others . Cable-suspended robotic contour crafting system. In *ASME Design Engineering Technical Conference*, Philadelphia, September, 10-13, 2006.
- [bosscher2007] Bosscher P. and others . Cable-suspended robotic contour crafting system. *Automation in Construction*, 17:45–55, 2007.
- [bossoni2006] Bossoni S. and others . Interaction of metrology, control and modeling in the machine-tool design. In *5th Chemnitz Parallelkinematik Seminar*, pages 135–154, Chemnitz, April, 25-26, 2006.
- [bostelman96] Bostelman R.V. Underwater work platform support system, April, 16, 1996. United States Patent n° 5,507,596 US Secretary of Commerce. **Keywords:** applications, patent.
- [bostelman96-1] Bostelman R., Albus J., Dagalakakis N., and Jacoff A. RoboCrane project: an advanced concept for large scale manufacturing. In *Proceedings Association for Unmanned vehicle systems International*, pages 509–521, Orlando, July, 15-19, 1996.
- [bostelman97] Bostelman R., Albus J., and Graham R.E. RoboCrane and Emma applied to waste storage tank remediation. In *American Nuclear Society 7th Topical Meeting on Robotics and Remote Systems*, Augusta, April 27- May 1, 1997.
- [botelloaceves2018] Botello-Aceves S. and others . Evaluating concurrent design approaches for a Delta parallel manipulator. *Robotica*, 36:697–714, 2018.
- [bouanane92] Bouanane K. and Fenton R.G. Kinematic analysis of parallel manipulators. In *ARK*, pages 115–122, Ferrare, September, 7-9, 1992.

- [bouchard2008-phd] Bouchard S. *Géométrie des robots parallèles entraînés par des câbles*. Ph.D. Thesis, Université Laval, Québec, 2008. **Keywords:** wire robot, mechanical architecture, optimal design.
- [bouchemal2013] Bouchemal B. and Zaatri A. Gestural and image-based control combination. In *1st Int. Conf. on Technology for helping people with special needs*, Ryadh, February, 18-20, 2013.
- [boudreau96] Boudreau R. and Turkkan N. Solving the forward kinematics of parallel manipulators with a genetic algorithm. *J. of Robotic Systems*, 13(2):111–125, February 1996.
- [boudreau98] Boudreau R., Darenfed S., and Turkkan N. Etude comparative de trois nouvelles approches pour la solution du problème géométrique direct des manipulateurs parallèles. *Mechanism and Machine Theory*, 33(5):463–477, July 1998.
- [boudreau98-1] Boudreau R., Levesque G., and Darenfed S. Parallel manipulator kinematics learning using holographic neural network models. *Robotics and Computer-Integrated Manufacturing*, 14(1):37–44, 1998.
- [boudreau99] Boudreau R. and Gosselin C.M. La synthèse d’une plate-forme de Gough-Stewart pour un espace atteignable prescrit. In *10th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 449–454, Oulu, June, 20-24, 1999.
- [boudreau99-1] Boudreau R. and Gosselin C.M. The synthesis of planar parallel manipulators with a genetic algorithm. *ASME J. of Mechanical Design*, 121(4):533–537, December 1999.
- [bounab2016] Bounab B. Multi-objective optimal design based kineto-elastostatic performance for the delta parallel mechanism. *Robotica*, 34(2):258–273, February 2016.
- [bourbonnais2015] Bourbonnais F., Bigras P., and Bonev I.A. Minimum-time trajectory planning and control of a pick-and-place five-bar parallel robot. *IEEE/ASME Trans. on Mechatronics*, 20(2), Avril February 2015.
- [bouri2010] Bouri M. and Clavel R. The linear delta: Developments and applications. In *41st International Symposium on Robotics*, pages 1–8, Munchen, June 2010.
- [bouzgarrou2020] Bouzgarrou C., Koessler A., and Bouton N. Singularity analysis and reconfiguration mode of the 3 – *CRS* parallel manipulator. In *IEEE Int. Conf. on Robotics and Automation*, Paris, May 31- August 31, 2020.
- [boye2005] Boye T. and Pritschow G. New transformation and analysis of a N-DOF LINAPOD with six struts for higher accuracy. *Robotica*, 23(5):555–560, September 2005.
- [boye2006] Boye T. and Verl A. Optimal set of poses to calibrate parallel kinematics for given measurement devices. In *5th Chemnitzer Parallelkinematik Seminar*, pages 635–653, Chemnitz, April, 25-26, 2006.
- [boztas2022] Boztas S. and Kiper G. Enumeration and instantaneous mobility analysis of a class of 3-UPU parallel manipulators with equilateral triangular platforms. *Robotica*, 40:1538–1569, 2022.
- [bracher2007] Bracher S., Baron L., and Wang X. Rotating table with parallel kinematic featuring a planar joint. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [brahmia2022] Brahmia A. and others . Kinematic sensitivity analysis of manipulators using a novel dimensionless index. *Robotics and Autonomous Systems*, 150, 2022.
- [brandt96] Brandt G. and others . Developement of a robot with optimal kinematics for the treatment of bone structures. In *18th Annual Int. Conf. of the IEEE Engineering in Medicine and Biology Society*, Amsterdam, October 31- November 3, 1996.
- [brandt97] Brandt G. and others . A compact robot for image guided orthopedic surgery. In *First Joint Conf. of Computer Vision, Virtual Reality and Robotics (CRVMED)II and Medical Robotics and Computer Assisted Surgery (MRCAS)III*, Grenoble, March, 19-22, 1997.
- [brandt97-1] Brandt G. and others . Developement of a x-ray image-guided parallel robot for orthopedic surgery. In *2nd Workshop on Medical robotics*, pages 69–79, Heidelberg, November, 10-12, 1997.
- [brandt99] Brandt G. and others . CRIGOS: a compact robot for image-guided orthopedic surgery. *IEEE Trans. on Robotics and Automation*, 3(4):252–260, December 1999.



- [brau2005] Brau E., Gosselin F., and Lallemant J-P. Design of a singularity free architecture for cable driven haptic interfaces. In *1st Joint Eurohaptics Conference and Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems. World Haptics Conference*, 2005.
- [brecher2006] Brecher C. and Hoffmann F. Multi-criteria comparison of standardized kinematic structure for machine-tools. In *5th Chemnitzer Parallelkinematik Seminar*, pages 65–82, Chemnitz, April, 25-26, 2006.
- [brecher2006-1] Brecher C. and others . Control concepts for PKM considering the mechanical coupling between actuators. In *5th Chemnitzer Parallelkinematik Seminar*, pages 413–427, Chemnitz, April, 25-26, 2006.
- [breguet96] Breguet J-M., Pernet E., and Clavel R. Stick and slip actuators and parallel architectures dedicated to microrobotics. In *Microrobotics: components and applications, SPIE Photonic East*, pages 13–24, Boston, November 1996.
- [breitbach2005] Breitbach E. and others . Adaptive tools in parallel robotics. In *2nd Int. Colloquium, Collaborative Research Centre 562*, pages 203–220, Braunschweig, May, 10-11, 2005.
- [brethe2012-h] Brethe J-F. Caractérisation, dimensionnement et des commande des robots manipulateurs industriels pour une meilleure précision, December, 7, 2012. Habilitation à diriger les recherches, Université du Havre. **Keywords:** accuracy.
- [bricard97] Bricard R. Mémoire sur la théorie de l’octaèdre articulé. *Journal de Mathématiques pures et appliquées, Liouville*, tome 3:113–148, 1897.
- [bricard06] Bricard R. Mémoire sur les déplacements à trajectoire sphériques. *Journal de l’École Polytechnique*, 11(2):1–96, 1906.
- [bringmann2006] Bringmann B. 3D error compensation for parallel kinematics. In *5th Chemnitzer Parallelkinematik Seminar*, pages 531–546, Chemnitz, April, 25-26, 2006.
- [brinker2018] Brinker J., Corves B., and Takeda Y. Kinematic performance evaluation of high-speed Delta parallel robots based on motion/force transmission indices. *Mechanism and Machine Theory*, 125:111–125, 2018.
- [briot2007] Briot S. and Arakelian V. Singularity analysis of PAMINSA Manipulators. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [briot2007-1] Briot S. and Bonev I.A. Are parallel robots more accurate than serial robots? *Trans. CSME*, 31(4):445–456, 2007.
- [briot2007-2] Briot S. *Analyse et optimisation d’une nouvelle famille de manipulateurs parallèles aux mouvements découplés*. Ph.D. Thesis, INSA, Rennes, June 2007. **Keywords:** mechanical architecture,decoupled robot,optimal design,kinematics.
- [briot2008] Briot S. and Arakelian V. On the dynamic properties and optimum control of parallel manipulators in the presence of singularity. In *IEEE Int. Conf. on Robotics and Automation*, pages 1549–1555, Pasadena, May, 19-23, 2008.
- [briot2008-1] Briot S. and Bonev I.A. Accuracy analysis of a 3-dof planar parallel robot. *Mechanism and Machine Theory*, 43(4):445–458, April 2008.
- [briot2008-2] Briot S. and Bonev I.A. Singularity analysis of zero-torsion parallel mechanisms. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 1952–1957, Nice, France, September, 22-26, 2008.
- [briot2008-3] Briot S., Arakelian V., and Guégan S. Design and prototyping of a partially decoupled 4-dof 3T1R parallel manipulator with high-load carrying capacity. *ASME J. of Mechanical Design*, 130(12):122303–1/8, December 2008.
- [briot2008-4] Briot S. and others . Self-motions of general  $\underline{RPR}$  planar parallel robots. *Int. J. of Robotics Research*, 27(7):855–866, July 2008.
- [briot2008-5] Briot S. and Arakelian V. Optimal force generation in parallel manipulators for passing through the singular positions. *Int. J. of Robotics Research*, 27(2):967–983, August 2008.

- [briot2009] Briot S., Arakelian V., and Guégan S. PAMINSA a new family of partially decoupled manipulators. *Mechanism and Machine Theory*, 44(2):425–444, February 2009.
- [briot2009-1] Briot S. and Bonev I.A. Pantotepron:a new fully decoupled 3-dof translational parallel robot for pick-and-place applications. *J. of Mechanisms and Robotics*, 1(2):021001–1/9, May 2009.
- [briot2010] Briot S., Pashkevich A., and Chablat D. Optimal technology-oriented design of parallel robots for high-speed machining applications. In *IEEE Int. Conf. on Robotics and Automation*, pages 1155–1161, Anchorage, May, 3-8, 2010.
- [briot2010-1] Briot S. and Bonev I.A. Pantopteron-4: A new 3T1R decoupled parallel manipulator for pick-and-place applications. *Mechanism and Machine Theory*, 45(5):707–721, May 2010.
- [briot2010-2] Briot S. and Bonev I.A. Accuracy analysis of 3T1R fully-parallel robots. *Mechanism and Machine Theory*, 45(5):695–708, May 2010.
- [briot2010-3] Briot S. and Arakelian V. On the dynamic properties of rigid-link flexible-joint parallel manipulators in the presence of type 2 singularities. *J. of Mechanisms and Robotics*, 2(2):021004–1/6, May 2010.
- [briot2012] Briot S. and Gautier M. Global identification of drive gains and dynamic parameters of parallel robots - part 1: Theory. In *RoManSy*, Paris, June, 12-15, 2012.
- [briot2012-1] Briot S. and Gautier M. Global identification of drive gains and dynamic parameters of parallel robots - part 2: Case study. In *RoManSy*, Paris, June, 12-15, 2012.
- [briot2012-2] Briot S. and others . Optimal force generation of 3-RRR decoupled planar robots for ensuring unlimited platform rotation. In *RoManSy*, Paris, June, 12-15, 2012.
- [briot2013] Briot S. and Khalil W. Recursive symbolic calculation of the dynamic model of flexible parallel robots. In *IEEE Int. Conf. on Robotics and Automation*, pages 5413–5418, Karlsruhe, May, 6-10, 2013.
- [briot2013-1] Briot S., Gautier M., and Krut S. Dynamic parameter identification of actuation redundant parallel robots using their power identification model: application to the DualV. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Tokyo, November, 3-7, 2013.
- [briot2013-2"] Briot S., Glazunov V., and Arakelian V. Investigation on the effort transmission in planar parallel manipulators. *J. of Mechanisms and Robotics*, 5(1), February 2013.
- [briot2014] Briot S., Rosenzveug V., and Martinet P. The hidden robot concept: a tool for control analysis and robot control-based design. In *ARK*, pages 31–39, Ljubljana, June 29- July 3, 2014.
- [briot2014-1] Briot S. and Khalil W. Recursive and symbolic calculation of the elastodynamic model of flexible parallel robot. *Int. J. of Robotics Research*, 33(3):461–483, April 2014.
- [briot2015] Briot S., Martinet P., and Rosenzveig V. The hidden robot: An efficient concept contributing to the analysis of the controllability of parallel robots in advanced visual servoing techniques. *IEEE Trans. on Robotics*, 31(6):1337–1352, December 2015.
- [briot2016] Briot S. and others . Degeneracy conditions of the dynamic model of parallel robots. *Multibody System Dynamics*, 37(4):371–412, 2016.
- [briot2016-1] Briot S. and others . Minimal representation for the control of parallel robots via leg observation considering a hidden robot model. *Mechanism and Machine Theory*, 106:115–147, December 2016.
- [briot2016-h] Briot S. Contribution à la maîtrise de la dynamique des robot parallèles, January, 8, 2016. Habilitation à diriger les recherches, Université de Nantes. **Keywords:** kinematics,design,dynamics.
- [briot2017] Briot S., Chaumette F., and Martinet P. Revisiting the determination of the singularity cases in the visual servoing of images points through the concept of hidden robot. *IEEE Trans. on Robotics*, 33(3):536–546, July 2017.
- [briot2017-1] Briot S., Caro S., and Germain C. Design procedure for a fast and accurate parallel manipulator. *J. of Mechanisms and Robotics*, 9(6), 2017.

- [briot2018] Briot S. and Goldsztejn A. Topology optimization of industrial robots: Application to a five-bar mechanism. *Mechanism and Machine Theory*, 120:30–56, 2018.
- [briot2023] Briot S. and Merlet J-P. Direct kinematic singularities and stability analysis of sagging cable-driven parallel robots. *IEEE Trans. on Robotics*, 2023.
- [brisan2002] Brisan C., Franitza D., and Hiller M. Modelling and analysis of errors for parallel robots. In *1st Int. Colloquium, Collaborative Research Centre 562*, pages 83–96, Braunschweig, May, 29-30, 2002.
- [brisan2002-1] Brisan C. and Hiller M. Particular aspects in designing anthropomorphic mechanisms. In *ARK*, pages 99–106, Caldes de Malavalla, June 29- July 2, 2002.
- [brisan2011] Brisan C. and Csiszar A. Computation and analysis of the workspace of a reconfigurable parallel robotic system. *Mechanism and Machine Theory*, 46:1647–1668, 2011.
- [brodsky98] Brodsky V., Glozman D., and Shoham M. Double circular-triangular six-degree-of-freedom parallel robot. In *ARK*, pages 155–164, Strobl, June 29- July 4, 1998.
- [brogardh2002] Brogardh T. and Gu C.Y. Parallel robot development at ABB. In *1st Int. Colloquium, Collaborative Research Centre 562*, pages 229–244, Braunschweig, May, 29-30, 2002.
- [brogardh2005] Brogardh T., Hanssen S., and Hovland G. Application-oriented development of parallel kinematic manipulators with large workspace. In *2nd Int. Colloquium, Collaborative Research Centre 562*, pages 153–170, Braunschweig, May, 10-11, 2005.
- [brooks93] Brooks T.L., Cleary K.R., and Uebel M. Six degree of freedom motion devices, November, 23, 1993. United States Patent n° 5,263,382 Hughes Aircraft Company. **Keywords:** mechanical architecture, patent.
- [bruckmann2006] Bruckmann T., Pott A., and Hiller M. Calculating force distributions for redundantly actuated tendon-based Stewart platforms. In *ARK*, pages 403–412, Ljubljana, June, 26-29, 2006.
- [bruckmann2006-1] Bruckmann T., Pott A., Franitza D., and Hiller M. A modular controller for redundantly actuated tendon-based Stewart platforms. In *1st European Conf. on Mechanism Science (Eucomes)*, Obergurgl, February, 21-26, 2006.
- [bruckmann2008] Bruckmann T. and others . *Parallel manipulators, New Developments*, chapter Wire robot part I, kinematics, analysis and design, pages 109–132. ITECH, April 2008. **Keywords:** wire robot, kinematics, statics, mechanical architecture, optimal design.
- [bruckmann2008-1] Bruckmann T. and others . *Parallel manipulators, New Developments*, chapter Wire robot part II, dynamics, control & applications, pages 133–152. ITECH, April 2008. **Keywords:** wire robot, dynamics, control, statics.
- [bruckmann2008-2] Bruckmann T., Mikelsons L., and Hiller M. A design-to-task approach for wire robots. In *1st Conf. on Interdisciplinary Applications in Kinematics*, Lima, January, 9-11, 2008.
- [bruckmann2010] Bruckmann T., Hiller M., and Schramm D. An active suspension system for simulation of ship maneuvers in wind tunnels. In *3rd European Conf. on Mechanism Science (Eucomes)*, Cluj-Napoca, September, 14-17, 2010.
- [bruckmann2012] Bruckmann T. and others . Development of a storage retrieval machine for high racks using a wire robot. In *ASME DETC*, Chicago, 2012.
- [bruckmann2015] Bruckmann T., Merlet J-P., Spanjer S., and Herder J. Puppet on a string. *Mikroniek*, 6:40–44, 2015.
- [bruckmann2017] Bruckmann T. and others . Concept studies of automated construction using cable-driven parallel robots. In *3rd Int. Conf. on cable-driven parallel robots (CableCon)*, Québec, 2017.
- [bruckmann2018] Bruckmann T., Reicheirt C., and Ji H. Energy consumption reduction of a cable-driven storage and retrieval system. In *ARK*, Bologna, July, 1-5, 2018.

- [bruni2007] Bruni S., Cerveri P., and Espinosa I. An application of an hybrid robot in the total knee replacement procedure. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [bruyninckx96] Bruyninckx H. and De Shutter J. A class of fully parallel manipulators with closed-form forward position kinematics. In *ARK*, pages 411–420, Portoroz-Bernadin, June, 22-26, 1996.
- [bruyninckx97] Bruyninckx H. The 321-hexa: a fully parallel manipulator with closed-form position and velocity kinematics. In *IEEE Int. Conf. on Robotics and Automation*, pages 2657–2662, Albuquerque, April, 21-28, 1997.
- [bruyninckx97-1] Bruyninckx H. The analytical forward displacement kinematics of the 32-12 parallel manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 2956–2960, Albuquerque, April, 21-28, 1997.
- [bruyninckx98] Bruyninckx H. Closed-form position kinematics of a  $(3 - 1 - 1 - 1)^2$  fully parallel manipulator. *IEEE Trans. on Robotics and Automation*, 14(2):326–328, April 1998.
- [bruyninckx98-1] Bruyninckx H. and De Schutter J. Unified kinetostatics for serial, parallel and mobile robots. In *ARK*, pages 343–352, Strobl, June 29- July 4, 1998.
- [bruyninckx99] Bruyninckx H. Forward kinematics for Hunt-Primrose parallel manipulators. *Mechanism and Machine Theory*, 34(4):657–664, May 1999.
- [bruzzzone2002] Bruzzzone L.E., R. Molino, and Zoppi M. A cost-effective purely translational parallel robot for rapid assembly tasks. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 429–440, Chemnitz, April, 23-25, 2002.
- [bruzzzone2002-1] Bruzzzone L.E., R. Molino, and Razzoli R.P. Modelling and design of a parallel robot for laser-cutting applications. In *IASTED Int. Conf. Modelling, Identification and Control*, pages 518–522, Innsbruck, February, 18-21, 2002.
- [bruzzzone2003] Bruzzzone L.E. and R. Molino. Special-purpose parallel robot for active suspension of ambulance stretchers. *Int. J. of Robotics and Automation*, 18(3):121–129, 2003.
- [bruzzzone2003-1] Bruzzzone L.E. and others . Experimental tests on the prototype of an impedance controlled three-degree-of-freedom parallel robot. In *RAAD*, Cassino, May, 7-10, 2003.
- [bruzzzone2003-2] Bruzzzone L.E. and others . The PRIDE prototype: control layout of a parallel robot for assembly tasks. In *IASTED Int. Conf. Modelling, Identification and Control*, pages 606–611, Innsbruck, February, 10-13, 2003.
- [bruzzzone2004] Bruzzzone L.E., R. Molino, and Zoppi M. Kinematic modelling and simulation of a novel interconnected-chains PKM. In *Int. Conf. Modelling, Identification and Control, MIC2004*, Grindelwald, February, 23-25, 2004.
- [bruzzzone2005] Bruzzzone L.E., R. Molino, and Zoppi M. An impedance-controlled parallel robots for high-speed assembly of white goods. *Industrial Robot*, 32(3):226–233, 2005.
- [bryfogle95] Bryfogle M.D. Material handling devices and controllers, September, 19, 1995. United States Patent n° 5,451,136. **Keywords:** applications, patent.
- [bryfogle97] Bryfogle M.D., Nguyen C.C., Zhou Z-l., and Antrazi S.S. A methodology for geometry design of closed kinematic chain mechanisms. In *IEEE Int. Conf. on Robotics and Automation*, pages 2974–2979, Albuquerque, April, 21-28, 1997.
- [bryson2016] Bryson J.T. *The optimal design of cable-driven robots*. Ph.D. Thesis, University of Delaware, 2017. **Keywords:** wire robot, optimal design.
- [bu2106] Bu W. Closeness to singularities of robotic manipulators measure by characteristic angles. *Robotica*, 34:2105–2115, 2016.
- [bu2107] Bu W. Closeness to singularities of manipulators based on geometric average normalized volume spanned by weighted screws. *Robotica*, 35(7):1616–1626, 2017.

- [budde2007] Budde C., Last P., and Hesselbach J. Development of a Triglides robot with enlarged workspace. In *IEEE Int. Conf. on Robotics and Automation*, pages 543–548, Roma, April, 10-14, 2007.
- [budde2008] Budde C. and others . Automatic detection of assembly mode for a Triglides-robot. In *IEEE Int. Conf. on Robotics and Automation*, pages 1568–1575, Pasadena, May, 19-23, 2008.
- [bulca96] Bulca F., Angeles J., and Zsombor-Murray P.J. On the workspace analysis of a spherical platform mechanisms. In *World Automation Congress*, volume 3, pages 131–136, Montpellier, May, 28-30, 1996.
- [bulca99] Bulca F., Angeles J., and Zsombor-Murray P.J. On the workspace determination of spherical serial and platform mechanisms. *Mechanism and Machine Theory*, 34(3):497–512, April 1999.
- [burdet2000] Burdet E., Honegger M., and Codourey A. Controllers with desired dynamic compensation and their implementation on a 6 dof parallel manipulator. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Takamatsu, October 30- November 5, 2000.
- [burisch2010] Burisch A. and others . Analysis and inverse dynamic model of a miniaturized robot structure. In *3rd European Conf. on Mechanism Science (Eucomes)*, Cluj-Napoca, September, 14-17, 2010.
- [bury2020-1] Bury D. and others . Continuous tension validation for cable-driven parallel robots. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Las Vegas, October, 25-29, 2020.
- [buruncuk99] Bürüncük K. and Tokad Y. On the kinematic of a 3-DOF Stewart Platform. *J. of Robotic Systems*, 16(2):105–117, 1999.
- [bury2019] Bury D. and others . Continuous collision detection for a robotic arm mounted on a cable-driven parallel robot. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Macau, November, 4-8, 2019.
- [bury2020] Bury D. *Planification de tâches de manipulation pour robots parallèles à câbles*. Ph.D. Thesis, Université de Toulouse, Toulouse, December, 17, 2020. **Keywords:** wire robot, trajectory planning.
- [butefisch-2000] Bütefisch S. and others . A new SMA actuated miniature silicon gripper for micro assembly. In *7th Int. Conf. on New Actuators*, pages 334–337, Bremen, June, 19-20, 2000.
- [buttgenbach2002] Büttgenbach S. and others . Microsensors for parallel robot. In *1st Int. Colloquium, Collaborative Research Centre 562*, pages 141–152, Braunschweig, May, 29-30, 2002.
- [buttgenbach2005] Büttgenbach S. and others . Development of angular joint-sensors and application to parallel robots. In *2nd Int. Colloquium, Collaborative Research Centre 562*, pages 237–252, Braunschweig, May, 10-11, 2005.
- [byun95] Byun Y.K., Kim D.Y., and Cho H-S. Analysis of a 6-dof pose/wrench sensor integrated Stewart platform-based robotic wrist. In *4th Int. Symp. on Measurement and Control in Robotics*, pages 283–288, Smolenice Castle, Slovakia, June, 12-16, 1995.
- [byun97] Byun Y.K. and Cho H-S. Analysis of a novel 6-dof, 3-PPSP parallel manipulator. *Int. J. of Robotics Research*, 16(6):859–872, December 1997.
- [caccavale2000] Caccavale F. and others . On the dynamics of a class of parallel robots. In *ARK*, pages 187–196, Piran, June, 25-29, 2000.
- [cai-g99] Cai G.Q. and others . Development and study of a new kind of 3-dof tripod. *Annals of the CIRP*, 48(1):333–336, 1999.
- [cai2017] Cai K. and others . Design and control of a 6-degree-of-freedom precision positioning system. *Robotics and Computer-Integrated Manufacturing*, 44:77–96, 2017.
- [callegari2003] Callegari M. and Tarantini M. Kinematic analysis of a novel translational platform. *ASME J. of Mechanical Design*, 125(2):308–315, June 2003.
- [callegari2003-1] Callegari M. and Marzetti P. Kinematics of a family of parallel translating mechanisms. In *RAAD*, Cassino, May, 7-10, 2003.

- [callegari2004] Callegari M. and Marzetti P. Kinematic characterization of the 3-*PUU* parallel robot. In *Proc. Intelligent Manipulation and Grasping, IMG'04*, pages 377–382, Genova, June 30- July 1, 2004.
- [callegari2004-1] Callegari M., Marzetti P., and Olivieri B. Kinematics of a parallel mechanism for the generation of spherical motions. In *ARK*, pages 449–458, Sestri-Levante, June 28- July 1, 2004.
- [callegari2005] Callegari M., Palpacelli M., and Scarponi M. Kinematics of the 3-CPU parallel manipulator assembled for motions of pure translation. In *IEEE Int. Conf. on Robotics and Automation*, pages 4031–4036, Barcelona, April, 19-22, 2005.
- [callegari2006] Callegari M. and Palpacelli M-C. Kinematics and optimization of the translating 3-CCR/3-RCC parallel mechanisms. In *ARK*, pages 423–432, Ljubljana, June, 26-29, 2006.
- [callegari2007] Callegari M. and Cammarata A. Kinematics and dynamics of a 3-CRU spherical parallel robot. In *ASME IDETC/CIE*, Las Vegas, September, 4-7, 2007.
- [callegari2008] Callegari M. and Palpacelli M-C. Prototype design of a translating parallel robot. *Meccanica*, 43(2):135–151, April 2008.
- [callegari2008-1] Callegari M. *Parallel manipulators, New Developments*, chapter Design and prototyping of a spherical parallel machine based on 3-CPU kinematics, pages 172–198. ITECH, April 2008. **Keywords:** 3 dof robot, wrist, kinematics, dynamics, structural synthesis.
- [callegari2008-2] Callegari M., Gabrielli A., and Ruggiu M. Kineto-elasto-static synthesis of a 3-CRU spherical wrist for miniaturized assembly tasks. *Meccanica*, 43(4):377–389, August 2008.
- [callegari2009] Callegari M. and others . Analysis and design of a spherical micromechanism with flexure hinges. *ASME J. of Mechanical Design*, 131(5), April 2009.
- [callegari2013] Callegari M., Carbonari L., Palmieri G., and Palpacelli M-Co. *Parallel Wrists for Enhancing Grasping Performance*, pages 189–219. Springer London, 2013. **Keywords:** wrist, 3 dof robot, mechanical architecture.
- [camacho2020] Camacho-Arreguin J. and others . A novel class of reconfigurable parallel kinematic manipulators: Concepts and Fourier-based singularity analysis. *Mechanism and Machine Theory*, 153, 2020.
- [cammarata2014] Cammarata A. and Sinatra R. Elastodynamic optimization of a 3T1R parallel manipulator. *Mechanism and Machine Theory*, 73:184–196, March 2014.
- [cammarata2016] Cammarata A. and others . Dynamic stiffness model of spherical parallel robots. *Journal of Sound and Vibration*, 384:312–324, 2016.
- [cammarata2020] Cammarata A. Full and reduced models for the elastodynamics of fully flexible parallel robots. *Mechanism and Machine Theory*, 151, 2020.
- [campa2022] F.J. Campa and others . Analysis of a compliant parallel manipulator for torso balance rehabilitation. In *ARK*, Bilbao, June, 26-30, 2022.
- [campolo2014] Campolo D. and others . H-Man: a planar, H-shape cabled differential robotic manipulandum for experiments on human motor control. *Journal of Neuroscience Methods*, 235, 2014.
- [campos2008] Campos A. and others . An active helideck testbed for floating structures based on a Stewart-Gough platform. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 3705–3710, Nice, France, September, 22-26, 2008.
- [canfield97] Canfield S.L. and Reinholtz C.F. Development of the carpal robotic wrist. In *ISER*, pages 360–371, Barcelone, June, 15-18, 1997.
- [canfield99] Canfield S.L., Soper R.R., and Reinholtz C.F. Velocity analysis of parallel manipulators by truss transformations. *Mechanism and Machine Theory*, 34(3):345–357, April 1999.
- [cano2006] Cano T. and others . Measuring the deformation of a parallel kinematics machine under dynamic conditions, by combining video and accelerometers. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Beijing, October, 9-15, 2006.

- [cao-w-2018] Cao W-A., Yang D., and Ding H. A method for stiffness analysis of overconstrained parallel robotic mechanisms with scara motion. *Robotics and Computer-Integrated Manufacturing*, 49:426–435, 2018.
- [cao-w-2018-1] Cao W-A. and Ding H. A method for solving all joint reactions of 3R2T parallel mechanisms with complicated structures and multiple redundant constraints. *Mechanism and Machine Theory*, 121:718–730, 2018.
- [cao-wa2019] Cao W-A., Ding H., and Zhu W. Stiffness modeling of overconstrained parallel mechanisms under considering gravity and external payloads. *Mechanism and Machine Theory*, 135:1–16, 2019.
- [cao2005] Cao Y., Huang Z., and Ge Q.J. Orientation singularity and orientation capability analyses of the Stewart-Gough manipulator. In *ASME Design Engineering Technical Conference*, Long Beach, September, 24-28, 2005.
- [cao2010] Cao Y. and others . Orientation-singularity and nonsingular orientation-workspace analysis of the semi-regular Stewart-Gough platform manipulator. *Advanced Robotics*, 24(15):2119–2135, 2010.
- [cao2013] Cao Y. and others . Orientation-singularity analysis and orientationability evaluation of a special class of the Stewart–Gough parallel manipulators. *Robotica*, 31(8):1361–1372, December 2013.
- [cao2016] Cao S., Luo Z., and Quan C. Passive velocity field control of a redundant cable-driven robot with tension limitations. In *IEEE International Conference on Robotics and Biomimetics*, Qingdao, December, 3-7, 2016.
- [cao2020] Cao Y. and others . Construction method of parallel mechanisms with a partially constant jacobian matrix. *Mechanism and Machine Theory*, 145, 2020.
- [cappel67] Cappel K.L. Motion simulator, January, 3, 1967. United States Patent n° 3,295,224 The Franklin Institute. **Keywords:** applications,patent,simulator.
- [cappel99] Cappel K.L. Invention and development of the Synergistic motion system. January 1999, <http://www.triz-journal.com/archives/1999/01/a>. **Keywords:** history.
- [capua2010] Capua A., Shapiro A., and Shoal S. Motion planning algorithm for a mobile robot suspended by seven cables. In *IEEE Int. Conf. on Robotics and Automation*, Anchorage, May, 3-8, 2010.
- [capua2011] Capua A., Shapiro A., and Shoal S. Spiderbot: A cable suspended mobile robot. In *IEEE Int. Conf. on Robotics and Automation*, pages 5135–5140, Shangai, May, 9-13, 2011.
- [capua2014] Capua A., Shapiro A., and Shoal S. SpiderBot: a cable-suspended walking robot. *Mechanism and Machine Theory*, 82:56–70, 2014.
- [capustiac2010] Capustiac A. and Brisan C. Aspect concerning VRML simulation of calibration for parallel mechanisms. In *3rd European Conf. on Mechanism Science (Eucomes)*, Cluj-Napoca, September, 14-17, 2010.
- [carabin2021] Carabin G. and others . An energy-efficient approach for 3d printing with a linear Delta robot equipped with optimal springs. *Robotics and Computer-Integrated Manufacturing*, 67, 2021.
- [carbonari2012] Carbonari L. and Callegari M. The kinematotropic 3-CPU parallel robot: analysis of mobility and reconfigurability aspects. In *ARK*, pages 373–380, Innsbruck, June, 25-28, 2012.
- [carbonari2014] Carbonari L. and others . Simplified model for inverse dynamics control of the Cartesian parallel manipulator I.Ca.Ro. In *IEEE/ASME Int. Conf. on Advanced Intelligent Mechatronics*, pages 1406–1412, Besancon, July, 8-11, 2014.
- [carbonari2014-1] Carbonari L. and others . Analysis of kinematics and reconfigurability of a spherical parallel manipulator. *IEEE Trans. on Robotics*, 30(6):1541–1547, December 2014.
- [carbone2001] Carbone G., Ceccarelli M., and Teolis M. A numerical evaluation of the stiffness of CaHyMan (cassino hybrid manipulator). In F.C. Park C.C. Iurascu, editor, *Computational Kinematics*, pages 145–154. EJCK, May, 20-22, 2001. **Keywords:** stiffness,hybrid robot.
- [carbone2003] Carbone G. and others . A study of feasibility for a macro-milli serial parallel robot manipulator for surgery operated by a 3 dofs haptic device. In *RAAD*, Cassino, May, 7-10, 2003.

- [carbone2005] Carbone G. and Ceccarelli M. A serial-parallel robotic architecture for surgical tasks. *Robotica*, 23(3):345–354, 2005.
- [carbone2009] Carbone G. and others . Design improvements on a carotid blood flow measurement system. In *Computational Kinematics*, pages 283–290, Duisburg, May, 6-8, 2009.
- [carboni2020] Carboni A.P., Simas H., and Martins D. Actuation scheme enumeration and optimal selection for parallel mechanisms based on matroid theory. *Mechanism and Machine Theory*, 151, 2020.
- [cardou2007] Cardou P. and Angeles J. Simplectic architectures for true multi-axial accelerometers: a novel application of parallel robots. In *IEEE Int. Conf. on Robotics and Automation*, pages 181–186, Roma, April, 10-14, 2007.
- [caro2006] Caro S. and others . Sensitivity analysis of the Orthoglide: a three-dof translational parallel kinematic machine. *ASME J. of Mechanical Design*, 128(2):392–402, March 2006.
- [caro2009] Caro S. and others . Sensitivity analysis of 3 – *RPR* planar parallel manipulators. *ASME J. of Mechanical Design*, 131(12):121004–1/13, December 2009.
- [caro2012] Caro S., Wenger P., and Chablat D. Non-singular assembly mode changing trajectories of a 6-dof parallel robot. In *ASME IDETC/CIE*, Chicago, August, 12-15, 2012.
- [caro2012-1] Caro S., Chablat D., and Chen C. Elastostatic modeling and shape optimization of a 6 dof haptic interface device. In *ASME ESDA*, Nantes, 2012.
- [caro2012-2] Caro S. and others . A branch and prune algorithm for the computation of generalized aspects of parallel robots. In *Principles and Practice of Constraint Programming*, pages 867–882, 2012.
- [caro2014-h] Caro S. Contributions à la conception et l’analyse de manipulateurs parallèles et de robot d’usinage, December, 5, 2014. Habilitation à diriger les recherches, Université de Nantes. **Keywords:** kinematics, design, singularity.
- [caro2020] Caro S. and Merlet J-P. Failure analysis of a collaborative 4-1 cable-driven parallel robot. In *EUCOMES*, Cluj-Napoca, virtual, 2020.
- [carpanzano2006] Carpanzano E. and others . An open source real time environment for control solutions design, optimization and testing of parallel kinematics machines. In *5th Chemnitzer Parallelkinematik Seminar*, pages 457–479, Chemnitz, April, 25-26, 2006.
- [carpio2018] Carpio-Aleman M.A. and others . Collision and tension analysis of cable-driven parallel robot for positioning and orientation. In *IEEE Int. Autumn Meeting on Power, Electronic and Computing (ROPEC)*, 2018.
- [carretero97] Carretero J. A. and others . Kinematic analysis of a three-dof parallel mechanism for telescope applications. In *ASME Design Engineering Technical Conference*, pages DETC97/DAC–3981, Sacramento, September, 14-17, 1997.
- [carretero2000] Carretero J. A. and others . Kinematic analysis and optimization of a new three degree-of-freedom spatial parallel manipulator. *ASME J. of Mechanical Design*, 122(1):17–24, March 2000.
- [carretero2006] Carretero J. A. and Pond G.T. Quantitative dexterous workspace comparison. In *ARK*, pages 297–306, Ljubljana, June, 26-29, 2006.
- [carretero2008] Carretero J. A., Ebrahimi I., and Boudreau R. A comparison between two motion planning strategies for kinematically redundant parallel manipulators. In *ARK*, pages 243–251, Batz/mer, June, 23-26, 2008.
- [carricato2002-1] Carricato M. and Parenti-Castelli V. Singularity-free fully isotropic translational parallel mechanisms. In *ASME Design Engineering Technical Conference*, Montréal, September 29- October 2, 2002.
- [carricato2002] Carricato M. and Parenti-Castelli V. Singularity-free fully isotropic translational parallel mechanisms. *Int. J. of Robotics Research*, 21(2):161–174, February 2002.
- [carricato2003] Carricato M. and Parenti-Castelli V. A family of 3-DOF translational parallel manipulators. *ASME J. of Mechanical Design*, 125(2):302–307, June 2003.



- [carricato2003-1] Carricato M. and Parenti-Castelli V. Position analysis of a new family of 3-dof translational parallel manipulators. *ASME J. of Mechanical Design*, 125(2):316–322, June 2003.
- [carricato2004] Carricato M. and Parenti-Castelli V. A novel fully decoupled two-degrees-of-freedom parallel wrist. *Int. J. of Robotics Research*, 23(6):661–667, June 2004.
- [carricato2005] Carricato M. Fully isotropic four-degrees-of-freedom parallel mechanisms for Schoenflies motion. *Int. J. of Robotics Research*, 24(5):397–414, May 2005.
- [carricato2009] Carricato M. and Gosselin C. On the modelling of leg constraints in the dynamic analysis of Gough/Stewart-type platforms. *ASME Journal of Computational and Nonlinear Dynamics*, 4, Janvier May 2009.
- [carricato2010] Carricato M. and Merlet J-P. Geometrico-static analysis of under-constrained cable-driven parallel robot. In *ARK*, pages 309–320, Piran, June 28- July 1, 2010.
- [carricato2011] Carricato M. and Merlet J-P. Direct geometrico-static problem of under-constrained cable-driven parallel robots with three cables. In *IEEE Int. Conf. on Robotics and Automation*, pages 3011–3017, Shanghai, May, 9-13, 2011.
- [carricato2012] Carricato M., Abbasnejad G., and Walter D. Inverse geometrico-static analysis of under-constrained cable-driven parallel robots with four cables. In *ARK*, pages 365–372, Innsbruck, June, 25-28, 2012.
- [carricato2012-1] Carricato M. and Abbasnejad G. Direct geometrico-static analysis of under-constrained cable-driven parallel robots with 4 cables. In *1st Int. Conf. on cable-driven parallel robots (CableCon)*, pages 269–286, Stuttgart, September, 3-4, 2012.
- [carricato2013] Carricato M. and Merlet J-P. Stability analysis of underconstrained cable-driven parallel robots. *IEEE Trans. on Robotics*, 29(1):288–296, 2013.
- [carricato2013-1] Carricato M. Inverse geometrico-static problem of underconstrained cable-driven parallel robots with three cables. *J. of Mechanisms and Robotics*, 5(3), August 2013.
- [carricato2013-2] Carricato M. Direct geometrico-static problem of underconstrained cable-driven parallel robots with three cables. *J. of Mechanisms and Robotics*, 5(3), August 2013.
- [carvalho2001] Carvalho J.C.M. and Ceccarelli M. The inverse dynamics of Cassino parallel manipulator. In F.C. Park C.C. Iurascu, editor, *Computational Kinematics*, pages 301–308. EJCK, May, 20-22, 2001. **Keywords:** dynamics.
- [carvalho2001-1] Carvalho J.C.M. and Ceccarelli M. A closed-form formulation for the inverse dynamics of a cassino parallel manipulator. *Multibody System Dynamics*, 5:185–210, 2001.
- [castellet98-phd] Castellet A. *Solving inverse kinematics problems using an interval method*. Ph.D. Thesis, Universitat Politècnica de Catalunya, Barcelone, June 1998. **Keywords:** forward kinematics.
- [castelli2009] Castelli G. and Ottaviano E. Modeling and simulation of a cable-based parallel manipulator as an assisting device. In *Computational Kinematics*, pages 17–24, Duisburg, May, 6-8, 2009.
- [castelli2010] Castelli G. and Ottaviano E. Modelling, simulation and testing of a reconfigurable cable-based parallel manipulator as motion aiding system. *Applied Bionics and Biomechanics*, 7(4):235–268, December 2010.
- [castelli2014] Castelli G., Ottaviano E., and Rea P. A cartesian cable-suspended robot for improving end-users mobility in an urban environment. *Robotics and Computer-Integrated Manufacturing*, 30(3):335–343, June 2014.
- [castillo2008] Castillo-Castaneda E. and Takeda Y. Improving path accuracy of a crank-type 6-dof parallel mechanism by stiction compensation. *Mechanism and Machine Theory*, 43(1):104–114, January 2008.
- [castillo2003] Castillo-Castaneda E. and others . Precision motion control of a crank-type 6 dof parallel mechanism. In *RAAD*, Cassino, May, 7-10, 2003.
- [castillo2007] Castillo-Castaneda E., Fonseca-Reyes M.J., and López-Cajún C.S. Non-linear control to compensate low velocity friction of a planar parallel robot. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.

- [cauchy13] Cauchy A. Deuxième mémoire sur les polygones et les polyèdres. *Journal de l'École Polytechnique*, pages 87–98, May 1813.
- [caverly2014] Caverly R.J. and Forbes J.R. Dynamic modeling and noncollocated control of a flexible planar cable-driven manipulator. *IEEE Trans. on Robotics*, 30(6):1386–1397, December 2014.
- [cazalilla2014] Casalilla J. and others . Implementation of dynamic controllers using real-time middleware for a low-cost parallel robot. In *IEEE Int. Conf. on Robotics and Automation*, Hong-Kong, 7 December 31- June , 2014.
- [ceccarelli93] Ceccarelli M., Ferraresi C., and Sorli M. Stiffness evaluation of a 6 d.o.f. platform prototype. In *3rd Int. Symp. on Measurement and Control in Robotics*, pages Bm.III–19,Bm.III–24, Turin, September, 21-24, 1993.
- [ceccarelli96] Ceccarelli M. A study of feasibility for a new wrist. In *World Automation Congress*, volume 3, pages 161–166, Montpellier, May, 28-30, 1996.
- [ceccarelli97] Ceccarelli M. A new 3 d.o.f. spatial parallel mechanism. *Mechanism and Machine Theory*, 32(8):896–902, 1997.
- [ceccarelli98] Ceccarelli M. and Sorli M. The effects of design parameters on the workspace of a Turin parallel robot. *Int. J. of Robotics Research*, 17(8):886–902, August 1998.
- [ceccarelli98-1] Ceccarelli M. A stiffness analysis for CAPAMAN, the Cassino Parallel Manipulator. In *New machine concepts for handling and manufacturing devices on the basis of parallel structures*, pages 67–80, Braunschweig, November, 10-11, 1998.
- [ceccarelli2002] Ceccarelli M. An optimum design of parallel manipulators: formulation and experimental validation. In *1st Int. Colloquium, Collaborative Research Centre 562*, pages 47–64, Braunschweig, May, 29-30, 2002.
- [ceccarelli2002-1] Ceccarelli M. and Ottaviano E. A workspace evaluation of an Eclipse robot. *Robotica*, 20(3):299–313, May 2002.
- [ceccarelli2005] Ceccarelli M. and Carbone G. Numerical and experimental analysis of the stiffness performances of parallel manipulators. In *2nd Int. Colloquium, Collaborative Research Centre 562*, pages 21–36, Braunschweig, May, 10-11, 2005.
- [ceccarelli2007] Ceccarelli M., Ottaviano E., and Tavolieri C. Experimental activity on cable-based parallel manipulators: issues and results at LARM in Cassino. In *2nd Int. Congress, Design and Modelling of mechanical systems*, Monastir, March, 19-21, 2007.
- [celaya2002] Celaya E. Interval propagation for solving parallel spherical mechanisms. In *ARK*, pages 415–422, Caldes de Malavalla, June 29- July 2, 2002.
- [cenati2002] Cenati C. and others . Methodological aspects on pose error characterization and calibration of parallel kinematic machines (PKM). Proposal of a structured self-calibration procedure. In *3rd Chemnitz Parallelkinematik Seminar*, pages 963–981, Chemnitz, April, 23-25, 2002.
- [cervantes99] Cervantez-Sanchez J.J. and Rendon-Sanchez J.G. A simplified approach for obtaining the workspace of a class of 2-dof planar parallel robot. *Mechanism and Machine Theory*, 34(7):1057–1073, October 1999.
- [cervantes-h2017] Cervantes-Culebro H. and others . Constraint-handling techniques for the concurrent design of a five-bar parallel robot. *IEEE Access*, 2017.
- [cervantes-h2021] Cervantes-Culebro H. and others . Concurrent design of a 2 dof five-bar parallel robot a hybrid design of rigid and flexible links. *IEEE Access*, 2021.
- [cha2007] Cha S-H., Lasky T.A., and Velinsky S.A. Singularity avoidance for the 3-rrr mechanism using kinematic redundancy. In *IEEE Int. Conf. on Robotics and Automation*, pages 1195–1200, Roma, April, 10-14, 2007.
- [chablat96] Chablat D. and Wenger P. Domaine d'unicité pour les robots parallèles. Research Report 96-13, Ecole Centrale, Nantes, December 1996.
- [chablat98] Chablat D., Wenger P., and Angeles J. The isoconditionning loci of a class of closed-chain manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 1970–1975, Louvain, May, 18-20, 1998.

- [chablat98-1] Chablat D. and Wenger P. Moveability and collision analysis for fully-parallel manipulators. In *12th RoManSy*, pages 61–68, Paris, July, 6-9, 1998.
- [chablat98-phd] Chablat D. *Domain d'unicité et parcourabilité pour les manipulateurs pleinement parallèles*. Ph.D. Thesis, Ecole Centrale, Nantes, November, 6, 1998. **Keywords:** singularity,workspace.
- [chablat2000] Chablat D. and Wenger P. A new three-dof parallel mechanism: milling machine applications. In *2nd Chemnitzer Parallelkinematik Seminar*, pages 141–152, Chemnitz, April, 12-13, 2000.
- [chablat2001] Chablat D. and Angeles J. The computation of all 4r serial spherical wrists with an isotropic architecture. In F.C. Park C.C. Iurascu, editor, *Computational Kinematics*, pages 1–10. EJCK, May, 20-22, 2001. **Keywords:** spherical robot,isotropy.
- [chablat2002] Chablat D., Wenger P., and Merlet J-P. Workspace analysis of the Orthoglide using interval analysis. In *ARK*, pages 397–406, Caldes de Malavalla, June 29- July 2, 2002.
- [chablat2002-1] Chablat D. and others . The isoconditioning loci of planar three-dof parallel manipulators. In *ASME Design Engineering Technical Conference*, Montréal, September 29- October 2, 2002.
- [chablat2003] Chablat D. and Wenger P. Architecture optimization of a 3-dof translational parallel mechanism for machining applications, the Orthoglide. *IEEE Trans. on Robotics and Automation*, 19(3):403–410, June 2003.
- [chablat2003-1] Chablat D., Majou F., and Wenger P. The optimal design of a three degree-of-freedom parallel mechanism for machining applications. In *11th ICAR*, pages 1775–1780, Coimbra, June 30- July 3, 2003.
- [chablat2004] Chablat D., Wenger P., and Merlet J-P. A comparative study between two three-dof parallel kinematic machines using kinetostatic criteria and interval analysis. In *11th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 1209–1213, Tianjin, April, 1-4, 2004.
- [chablat2004-1] Chablat D., Wenger P., Majou F., and Merlet J-P. An interval analysis based study for the design and the comparison of three-degrees-of-freedom parallel kinematic machine. *Int. J. of Robotics Research*, 23(6):615–624, 2004.
- [chablat2006] Chablat D., Wenger P., Majou F., and Bonev I.A. Self motion of a special 3 – *RPR* planar parallel robot. In *ARK*, pages 221–228, Ljubljana, June, 26-29, 2006.
- [chablat2006-1] Chablat D. and Angeles J. The design of a novel prismatic drive for a three-dof parallel-kinematic machine. *ASME J. of Mechanical Design*, 128(4):710–718, July 2006.
- [chablat2008] Chablat D. Contribution à l'analyse et à l'optimisation de mécanismes poly-articulés, March, 31, 2008. Habilitation à diriger les recherches, Université de Nantes. **Keywords:** isotropy,design,optimal design,singularity.
- [chablat2010] Chablat D. and others . Comparison of planar parallel manipulator architectures based on a multi-objective design optimization approach. In *ASME Design Engineering Technical Conference*, Montréal, August, 15-18, 2010.
- [chablat2011] Chablat D., Ottaviano E., and Moroz G. A comparative study of 4-cable planar manipulators based on cylindrical algebraic decomposition. In *ASME Design Engineering Technical Conference*, pages 1253–1262, Washington, August, 28-31, 2011.
- [chablat2012] Chablat D. and others . Solution regions in the parameter space of a 3-RRR decoupled robot for a prescribed workspace. In *ARK*, pages 357–364, Innsbruck, June, 25-28, 2012.
- [chablat2013] Chablat D. and others . Workspace and joint space analysis of the 3-RPS parallel robot. In *ASME DETC*, Buffalo, 2013.
- [chablat2014] Chablat D. and others . Non-singular assembly mode changing trajectories in the workspace for the 3 – *RPS* parallel robot. In *ARK*, pages 41–49, Ljubljana, June 29- July 3, 2014.
- [chablat2016] Chablat D., Jha R., and Caro S. A framework for the control of a parallel manipulator with several actuation modes. In *IEEE 14th International Conference on Industrial Informatics (INDIN)*, 2016.

- [chablat2018] Chablat D., Kong X., and Zhang C. Kinematics, workspace, and singularity analysis of a parallel robot with five operation modes. *J. of Mechanisms and Robotics*, 10, June 2018.
- [chablat2018-1] Chablat D., Ottaviano E., and Venkateswaran S. Self-motion of the 3 – PPS parallel robot with Delta-shaped base. In *EUCOMES*, pages 317–324, Aachen, September, 4-6, 2018.
- [chablat2018-2] Chablat D. and others . The 3 – PPPS parallel robot with U-shape base, a 6-dof robot with simple kinematics. In *ARK*, Bologna, July, 1-5, 2018.
- [chablat2019] Chablat D., Ottaviano E., and Venkateswaran S. Self-motion conditions for a 3 – PPPS parallel robot with delta-shaped base. *Mechanism and Machine Theory*, 135:109–114, 2019.
- [chablat2021] Chablat D. and others . Workspace analysis in the design parameter space of a 2-dof spherical parallel mechanism for a prescribed workspace: Application to the otologic surgery. *Mechanism and Machine Theory*, 157, 2021.
- [chai-x2012] Chai X. and others . Error modeling and accuracy analysis of a multi-level hybrid support robot. In *IEEE Int. Conf. on Robotics and Automation*, pages 2319–2324, Saint Paul, May, 14-18, 2012.
- [chai-x2020] Chai X. and others . Dynamic modeling and analysis of a 2PRU-UPR parallel robot based on screw theory. *IEEE Access*, 2020.
- [chai-x2020-1] Chai X. and others . Kinematic sensitivity analysis and dimensional synthesis of a redundantly actuated parallel robot for friction stir welding. *Chinese J. of Mechanical Engineering*, 33(1), 2020.
- [chai2001] Chai K-S. and Young K. Designing a Stewart platform-based cooperative system for large component assembly. In *IEEE Int. Conf. on Methods and Models in Automation and Robotics*, Miedzyzdroje, August, 28-31, 2001.
- [chai2002] Chai K-S., Young K., and Tiersley I. A practical calibration process using partial information for a commercial Stewart platform. *Robotica*, 20(3):315–322, 2002.
- [chakarov94] Chakarov D. and Parushev P. Synthesis of parallel manipulator with linear drive modules. *Mechanism and Machine Theory*, 29(7):917–932, October 1994.
- [chakarov99] Chakarov D. Study of the passive compliance of parallel manipulators. *Mechanism and Machine Theory*, 34(3):373–389, April 1999.
- [chakarov2004] Chakarov D. Study of the antagonistic stiffness of parallel manipulators with actuation redundancy. *Mechanism and Machine Theory*, 39(6):583–601, June 2004.
- [chaker2012] Chaker A. and others . Clearance and manufacturing errors effects on the accuracy of the 3-RCC spherical parallel manipulators. In *RoManSy*, Paris, June, 12-15, 2012.
- [chaker2013] Chaker A. and others . Clearance and manufacturing errors effects on the accuracy of the 3-RCC spherical parallel manipulator. *European Journal of Mechanics A/Solids*, 27:86–95, January - February , 2013.
- [chan-yp2018] Chan Y.P. and others . Improved computational speed of system dynamics for cable-driven robots through generalised model compilation. In *Int. Conf. on Real-time Computing and Robotics*, Kandima, August, 1-5, 2018.
- [chan2001] Chan V.K. and Ebert-Uphoff I. Investigation of the deficiencies of parallel manipulators in singular configurations through the jacobian nullspace. In *IEEE Int. Conf. on Robotics and Automation*, Seoul, May, 21-26, 2001.
- [chanal2009] Chanal H. and others . Reduction of a parallel kinematics machine tool inverse kinematics model with regard to machining behaviour. *Mechanism and Machine Theory*, 44(7):1371–1385, July 2009.
- [chanal2022] Chanal H. and others . Complete inverse geometric model computation of the Quattro parallel kinematic robot. In *ARK*, Bilbao, June, 26-30, 2022.
- [chandra2011] Chandra R. and Rolland L. On solving the forward kinematics of 3-RPR planar parallel manipulator using hybrid metaheuristics. *Applied Mathematics and Computation*, 217(17):8997–9008, May 2011.

- [chang-p-2006] Chang P., Li T., and Guan L. Minimal linear combinations of the error parameters for kinematic calibration of parallel kinematic machines. In *5th Chemnitz Parallelkinematik Seminar*, pages 565–583, Chemnitz, April, 25-26, 2006.
- [chang2003] Chang W-T., Lin C-C., and Lee J-J. Force transmissibility performance of parallel manipulators. *J. of Robotic Systems*, 20(11):659–670, 2003.
- [chang-d2013] Chang D. and others . Design of a novel tremor suppression device using a linear Delta manipulator. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 413–418, Tokyo, November, 3-7, 2013.
- [charentus88] Charentus S., Diaz C, and Renaud M. Modular serial parallel redundant robot. In *IMACS*, Cetraro, Italie, September, 18-21, 1988.
- [charentus89] Charentus S. and Renaud M. Calcul du modèle géométrique direct de la plate-forme de Stewart. Research Report 89260, LAAS, Toulouse, France, July 1989.
- [charentus90-phd] Charentus S. *Modélisation et commande d’un robot manipulateur redondant composé de plusieurs plate-formes*. Ph.D. Thesis, Université Paul Sabatier, Toulouse, April, 13, 1990. **Keywords:** kinematics, redundant robot, modular robot.
- [charles95] Charles P.A.S. Octahedral machine tool frame, February, 28, 1995. United States Patent n° 5,392,663 Ingersoll Milling Machine Company. **Keywords:** applications, machine-tool, patent.
- [chawla2021] Chawla I. and others . Effect of selection criterion on the kineto-static solution of a redundant cable-driven parallel robot considering cable mass and elasticity. *Mechanism and Machine Theory*, 156, 2021.
- [chawla2021-1] Chawla I. and others . Neural network-based inverse kineto-static analysis of cable-driven parallel robot considering cable mass and elasticity. In *5th Int. Conf. on cable-driven parallel robots (CableCon)*, virtual, July, 7-9, 2021.
- [chawla2021-2] Chawla I. and others . Workspace analysis and design of large-scale cable-driven printing robot considering cable mass and mobile platform orientation. *Mechanism and Machine Theory*, 165, 2021.
- [che2020] Che L. and others . Dimensional synthesis for a Rec4 parallel mechanism with maximum transmission workspace. *Mechanism and Machine Theory*, 153, 2020.
- [chebbi2009] Chebbi A-H., Affi Z., and Romdhane L. Kinetostatic and singularity analyses of the 3-UPU translational parallel robot. In *Computational Kinematics*, pages 61–68, Duisburg, May, 6-8, 2009.
- [chebbi2009-1] Chebbi A-H., Affi Z., and Romdhane L. Prediction of the pose errors produced by joints clearance for a 3-UPU parallel robot. *Mechanism and Machine Theory*, 44(9):1768–1783, September 2009.
- [chebbi2010] Chebbi A-H. and Parenti-Castelli V. Geometric and manufacturing issues of the 3-UPU pure translational manipulator. In *3rd European Conf. on Mechanism Science (Eucomes)*, pages 595–603, Cluj-Napoca, September, 14-17, 2010.
- [chellal2012] Chellal R., Laroche E., Cuvillon L., and Gangloff J. An identification methodology for 6-dof cable-driven parallel robots parameters. Application to the INCA 6D robot. In *1st Int. Conf. on cable-driven parallel robots (CableCon)*, Stuttgart, September, 3-4, 2012.
- [chellal2014] Chellal R., Laroche E., and Cuvillon L. An  $H_\infty$  methodology for position control of 6-dof cable-driven parallel robots. In *European Control Conference*, Strasbourg, June, 24-27, 2014.
- [chellal2014-1] Chellal R., Cuvillon L., and Laroche E. A kinematic vision-based position control of a 6dof cable-driven parallel robot. In *2nd Int. Conf. on cable-driven parallel robots (CableCon)*, Duisburg, August, 24-27, 2014.
- [chellal2017] Chellal R., Cuvillon L., and Laroche E. Model identification and vision-based  $H_\infty$  position control of 6-dof cable-driven parallel robots. *Int. J. of Control*, 90(4):684–701, 2017.
- [chen-c2012] Chen C. and others . A six degree of freedom epicyclic-parallel manipulator. *J. of Mechanisms and Robotics*, 4(4), November 2012.
- [chen-ct2008] Chen C-T. and Chi H-W. Singularity-free trajectory planning of platform-type parallel manipulators for minimum actuating efforts and reactions. *Robotica*, 26(3):371–384, May 2008.

- [chen-ct2008-1] Chen C-T. and Liao T.T. Optimal path programming of the Stewart platform manipulator using the Boltzmann-Hamel-d'Alembert dynamics formulation model. *Advanced Robotics*, 22(6-7):705–730, 2008.
- [chen-d2018] Chen D., Zhang Y., and Li S. Zeroing neural-dynamics approach and its robust and rapid solution for parallel robot manipulators against superposition of multiple disturbances. *Neurocomputing*, 275:845–858, 2018.
- [chen-g-2015] Chen G. and others . Configuration bifurcation and self-motion analysis of 3 –  $SPS+1PS$  bionic parallel test platform for hip joint simulator. *Mechanism and Machine Theory*, 86:62–72, 2015.
- [chen-g2013] Chen G. and others . Stiffness analysis of a 3CPS parallel manipulator for mirror active adjusting platform in segmented telescope. *Robotics and Computer-Integrated Manufacturing*, 29(5):302–311, October 2013.
- [chen-g2013-1] Chen G. and Lin Z. A unified approach to the accuracy analysis of planar parallel manipulator both with uncertainties and joint clearance. *Mechanism and Machine Theory*, 64:1–17, June 2013.
- [chen-g2018] Chen G. and others . Complete, minimal and continuous error models for the kinematic calibration of parallel manipulators based on POE formula. *Mechanism and Machine Theory*, 121:844–856, 2018.
- [chen-g2018-1] Chen G. and others . A novel method for the dynamic modeling of Stewart parallel mechanism. *Mechanism and Machine Theory*, 126:397–412, 2018.
- [chen-g2019] Chen G. and others . A simple two-step geometric approach for the kinematic calibration of the 3 –  $PRS$  parallel manipulator. *Robotica*, 37:437–450, 2019.
- [chen-g2020] Chen G. and others . Design and validation of a spatial two-limb 3r1t parallel manipulator with remote center-of-motion. *Mechanism and Machine Theory*, 149, 2020.
- [chen-im-2003] Chen I-M. and others . The management of parallel-manipulator singularities using joint-coupling. In *IEEE Int. Conf. on Robotics and Automation*, pages 773–778, Taipei, September, 14-19, 2003.
- [chen-im-2003-1] Chen I-M. and others . Shaping singularity loci of parallel manipulators using joint-coupling. In *Int. Conf. on Automation Technology*, Taipei, September, 12-14, 2003.
- [chen-im2001] Chen I-M. and others . Self-calibration of three-legged modular reconfigurable parallel robots based on measurement residues. In F.C. Park C.C. Iurascu, editor, *Computational Kinematics*, pages 117–132. EJKK, May, 20-22, 2001. **Keywords:** calibration.
- [chen-q2013] Chen Q. and others . An integrated two-level self-calibration method for cable-driven manipulator. *IEEE Trans. on Robotics*, 10(2):380–391, March 2004.
- [chen-q2019] Chen Q. and others . Design and development of a new cable-driven parallel robot for waist rehabilitation. *IEEE/ASME Trans. on Mechatronics*, 24(2), August 2019.
- [chen-sh2008] Chen S-M., Huang C.I., and Fu L-C. Applying a non linear observer to solve forward kinematics of a Stewart platform. In *17th IEEE Int. Conf. on Control Applications*, pages 1183–1188, San Antonio, September, 3-5, 2008.
- [chen-t2017] Chen T. and others . Mechanism design and analysis for an automatical reconfiguration cable-driven parallel robot. In *2nd International Conference on Cybernetics, Robotics and Control*, 2017.
- [chen-wj-2001] Chen W-J. and others . A novel 4-dof parallel manipulator and its kinematic modelling. In *IEEE Int. Conf. on Robotics and Automation*, pages 3350–3355, Seoul, May, 23-25, 2001.
- [chen-wj-2002] Chen W-J. and others . A 2T-2R, 4-dof parallel manipulator. In *ASME Design Engineering Technical Conference*, Montréal, September 29- October 2, 2002.
- [chen-ws-2008] Chen W-S. and Chen J-K., H. and Liu. Extreme configuration bifurcation anlysis and link safety length of Stewart platform. *Mechanism and Machine Theory*, 43(5):617–626, May 2008.
- [chen-x-2002] Chen X. and others . Workspace generation of the 3-PRS parallel robot based on the NN. In *1st Int. Conf. on Machine Learning and Cybernetics*, pages 2087–2089, Beijing, November, 4-5, 2002.

- [chen-x-2004] Chen X. and others . Study on kinematic characteristics and singularities of 3-dof parallel robot. In *3rd Int. Conf. on Machine Learning and Cybernetics*, pages 2870–2873, Shangai, August, 26-29, 2004.
- [chen-y-2000] Chen Y. and McInroy J.E. Identification and decoupling control of flexure jointed hexapods. In *IEEE Int. Conf. on Robotics and Automation*, pages 1936–1941, San Francisco, April, 24-28, 2000.
- [chen-y-2003] Chen Y., McInroy J.E., and Yi Y. Optimal, fault-tolerant mappings to achieve secondary goals without compromising primary performance. *IEEE Trans. on Robotics and Automation*, 19(4):681–691, August 2003.
- [chen-y-2003-1] Chen Y. and McInroy J.E. A task space redundancy-based scheme for motion planning. In *American Control Conf.*, pages 3435–3445, Denver, June, 4-6, 2003.
- [chen-y-2004] Chen Y. and McInroy J.E. Decoupled control of flexure-jointed hexapods using estimated joint-space mass-inertia matrix. *IEEE Trans. on Control Systems Technology*, 12(3):413–421, May 2004.
- [chen-y-2024] Chen Y. and others . Error modeling and analysis of a spherical parallel mechanism with a multiloop circuit incremental method. *Mechanism and Machine Theory*, 191, 2024.
- [chen-yc-94] Chen Y.-C. and Walker I.D. A consistent approach to the instantaneous kinematics of redundant, non-redundant and in-parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 2172–2178, San Diego, May, 8-13, 1994.
- [chen-z2020] Chen Z. and others . Kinematics analysis of a novel 2R1T 3-PUU parallel mechanism with multiple rotation centers. *Mechanism and Machine Theory*, 152, 2020.
- [chen92] Chen N.X. and Song S.-M. Direct position analysis of the 4-6 Stewart platform. In *22nd Biennial Mechanisms Conf.*, pages 75–80, Scottsdale, September, 13-16, 1992.
- [chen94] Chen N.X. and Song S.-M. Direct position analysis of the 4-6 Stewart platform. *ASME J. of Mechanical Design*, 116(1):61–66, March 1994.
- [cheng-c2016] Cheng C., Xu W., and Shang J. Distributed-torque-based independent joint tracking control of a redundantly actuated parallel robot with two higher kinematic pairs. *IEEE Trans. on Industrial Electronics*, 63(2), February 2016.
- [cheng-c2020] Cheng C., Huang W., and Zhang C. Design and development of a novel 2-degree-of-freedom parallel robot. *Robotica*, 38:1–14, 2020.
- [cheng-g-2013] Cheng G. and otehrs . Stiffness analysis of the 3-SPS+1PS bionic parallel test platform for a hip joint simulator. *Robotica*, 31(6):936–944, September 2013.
- [cheng-g-2019] Cheng G. and otehrs . A simple two-step geometric approach for the kinematic calibration of the 3-PRS parallel manipulator. *Robotica*, 37:837–850, 2019.
- [cheng-j-2007] Cheng J. Research on the operating characteristics of parallel 4-dof electric platform with 4 TPS-PS structure. *J. of Zhejiang University Science A*, 8(11):1800–1807, 2007.
- [cheng-y-2003] Cheng Y., Ren G., and Dai S. Vibration control of Gough-Stewart platform on flexible suspension. *IEEE Trans. on Robotics and Automation*, 19(3):489–493, June 2003.
- [cheng94] Cheng H.H. Real-time manipulation of a hybrid serial-and-parallel driven redundant industrial manipulator. *ASME J. of Dynamic Systems, Measurement and Control*, 116(4):687–701, December 1994.
- [chen-jl2013] Chen J.-L. and others . Using UWB sensor for Delta robot vibration detection. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 419–423, Tokyo, November, 3-7, 2013.
- [cheok93] Cheok Ka.C., Overholt J.L., and Beck R.R. Exact methods for determining the kinematics of a Stewart platform using additional displacement sensors. *J. of Robotic Systems*, 10(5):689–707, July 1993.
- [chetelat96] Chételet O., Myszkowski P., Longchamp R., and Merlet J.-P. Algorithme itératif à convergence démontrée pour les changements de coordonnées des mécanismes articulés. Research Report 1996-07, EPFL, Institut d’Automatique, Lausanne, Suisse, November 1996.

- [chetelat97] Chételet O., Merlet J-P., Myszkorowski P., and Longchamp R. Globally convergent iterative algorithms for the coordinate transformations in the articulated mechanisms. In *Syroco*, Nantes, September 1997.
- [chetelat97-phd] Chételet O. *Algorithme numérique pour les changements de coordonnées des mécanismes articulés*. Ph.D. Thesis, EPFL, Lausanne, October, 20, 1997. **Keywords:** forward kinematics.
- [chettibi2005] Chettibi T. and others . Generating optimal dynamic motions for closed-chain robotic systems. *European Journal of Mechanics A/Solids*, 24:504–518, 2005.
- [chiacchio93] Chiacchio P., Pierrot F., Sciavicco L., and Siciliano B. Robust design of independent joint controllers with experimentation on a high-speed parallel robot. *IEEE Trans. on Industrial Electronics*, 40(4):393–403, August 1993.
- [chianura-phd2018] Chianura M. *Vision-based enhancement of the pose accuracy of a redundantly actuated cable-driven parallel robot*. Ph.D. Thesis, University Bologna, 2018. **Keywords:** wire robot, accuracy, forward kinematics with redundant sensors.
- [chikh2010] Chikh L. and others . A mixed GPC- $H_\infty$  robust cascade position-pressure control strategy for electropneumatic cylinders. In *IEEE Int. Conf. on Robotics and Automation*, pages 5147–5154, Anchorage, May, 3-8, 2010.
- [chirikjian94] Chirikjian G.S. A binary paradigm for robotic manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 3063–3070, San Diego, May, 8-13, 1994.
- [chirikjian95] Chirikjian G.S. Hyper-redundant manipulator dynamics: a continuum approximation. *Advanced Robotics*, 9(3):217–243, 1995.
- [chirikjian96] Chirikjian G.S. Group theoretical synthesis of binary manipulators. In *11th RoManSy*, pages 107–114, Udine, July, 1-4, 1996.
- [chirikjian2000] Chirikjian G.S. Symmetries in workspace densities of discretely actuated manipulators. In *ARK*, pages 259–266, Piran, June, 25-29, 2000.
- [chiu2001] Chiu Y.J. and Perng M-H. Forward kinematics of a general fully parallel manipulator with auxiliary sensors. *Int. J. of Robotics Research*, 20(5):401–414, May 2001.
- [chiu2002] Chiu Y.J. and Perng M-H. Total self-calibration of a general hexapod manipulator. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 469–490, Chemnitz, April, 23-25, 2002.
- [chiu2004] Chiu Y.J. and Perng M-H. Self-calibration of a general hexapod manipulator with enhanced precision in 5-dof motions. *Mechanism and Machine Theory*, 39(1):1–23, January 2004.
- [choi-hs-2005] Choi H-S.. and others . Development of hybrid robot for construction works with pneumatic actuator. *Automation in Construction*, 14(4):452–459, August 2005.
- [choi-jh2014] Choi J-H., Seo T.W., and Lee J.W. Torque distribution optimization of redundantly actuated planar parallel mechanisms based on a null-space solution. *Robotica*, 32(7):1125–1134, October 2014.
- [choi-jk-2004] Choi J-K., Omata T., and Mori O. Self-reconfigurable planar parallel robot. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 2654–2660, Sendai, September 28- October 2, 2004.
- [choi-jk-2004-1] Choi J-K. and others . Self-reconfigurable planar parallel robot in the horizontal plane. *Advanced Robotics*, 18(1):45–60, 2004.
- [choi-k-2002] Choi K., Jiang S., and Li Z. Spatial stiffness realization with parallel springs using geometric parameters. *IEEE Trans. on Robotics and Automation*, 18(3):274–284, June 2002.
- [choi-sh-2017] Choi S-H. and others . The integrated elasto-plastic cable modeling for cable driven parallel robots (CDPRs). In *ICCAS*, Jeju, October, 18-21, 2017.
- [choi2003] Choi H.B. and others . Design and control of a novel 4-dofs parallel robot H4. In *IEEE Int. Conf. on Robotics and Automation*, pages 1185–1190, Taipei, September, 14-19, 2003.



- [choi2010] Choi H.B., Konno A., and Uchiyama M. Design, implementation and performance evaluation of a 4-dof parallel robot. *Robotica*, 28(1):107–118, January 2010.
- [choi2010-1] Choi H.B., Konno A., and Uchiyama M. Inverse dynamics analysis of a 4-d.o.f. parallel robot H4. *Advanced Robotics*, 24(1-2):159–177, 2010.
- [choi2012] Choi H.B. and Ryu J. Convex hull-based power manipulability analysis of robot manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 2972–2977, Saint Paul, May, 14-18, 2012.
- [chong2020] Chong Z. and others . Design of the parallel mechanism for a hybrid mobile robot in wind turbine blades polishing. *Robotics and Computer-Integrated Manufacturing*, 61, February 2020.
- [chouabi2016] Chouabi Y. and others . Analytical modeling and analysis of the clearance induced orientation error of the RAF translational parallel manipulator. *Robotica*, 34(8):1898–1921, August 2016.
- [choudhury2000] Choudhury P. and Ghosal A. Singularity and controllability analysis of parallel manipulators and closed-loop mechanisms. *Mechanism and Machine Theory*, 35(10):1455–1479, October 2000.
- [chuang2000] Chuang H-Y. and Chang Y-C. A novel contour error compensator for 3-PRPS platform. *J. of Robotic Systems*, 17(5):273–289, 2000.
- [chung-gb-2001] Chung G.B. and others . Design and analysis of a spatial 3-dof micromanipulator for tele-operation. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 337–342, Maui, Hawaii, October 29-November 3, 2001.
- [chung-j2010] Chung J. and others . Implementation of a 4-dof parallel mechanism as a needle insertion device. In *IEEE Int. Conf. on Robotics and Automation*, pages 662–668, Anchorage, May, 3-8, 2010.
- [chung-jh-2007] Chung J-H., Yi B-J., and Oh S. Design of a new spatial 3-dof parallel mechanism with application to a PDP TV mounting device. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 3999–4006, San Diego, September, 22-26, 2007.
- [chung2001] Chung Y-H., Choo J-H, and Lee J-W. Sensation: a new 2 dof parallel mechanism for haptic device. In F.C. Park C.C. Iurascu, editor, *Computational Kinematics*, pages 45–56. EJCK, May, 20-22, 2001. **Keywords:** 2 dof robot,haptic device.
- [chung2002] Chung Y-H., Choo J-H, and Lee J-W. The effect of actuator relocation on singularity, jacobian and kinematic isotropy of parallel robots. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 2147–2153, Lausanne, October 2002.
- [cirillo2017] Cirillo P., Natale C., Cirillo A., and Marino A. Optimal custom design of both symmetric and unsymmetrical hexapod robots for aeronautics applications. *Robotics and Computer-Integrated Manufacturing*, 44:1–16, April 2017.
- [cisneroslimon2015] Cisneros-Limon R. and others . Workspace analysis of a 6-RSS parallel robot considering non-ideal spherical joints. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Hamburg, Germany, September 28- October 2, 2015.
- [claudinon85] Claudinon B. and Lievre J. Test facility for rendez-vous and docking. In *36th Congress of the IAF*, pages 1–6, Stockholm, October, 7-12, 1985.
- [clavel88] Clavel R. DELTA, a fast robot with parallel geometry. In *18th Int. Symp. on Industrial Robots (ISIR)*, pages 91–100, Lausanne, April, 26-28, 1988.
- [clavel89-1] Clavel R. Une nouvelle structure de manipulateur parallèle pour la robotique légère. *APII*, 23(6):501–519, 1989.
- [clavel90] Clavel R. Device for the movement and positioning of an element in space, December, 11, 1990. United States Patent n° 4,976,582, Sogeva S.A. **Keywords:** mechanical architecture,patent.
- [clavel91] Clavel R. *Conception d’un robot parallèle rapide à 4 degrés de liberté*. Ph.D. Thesis, EPFL, Lausanne, 1991. n° 925. **Keywords:** mechanical architecture,kinematics,singularity,4 dof robot,workspace,kinetics,hardware.

- [clavel94] Clavel R. Robots parallèles, 1994. Techniques de l'Ingénieur, Traité Mesures et Contrôle. **Keywords:** state of the art, applications.
- [clavel2002] Clavel R. and others . A new parallel kinematics able to machine 5 sides of a cube-shaped object: Hita STT. In *1st Int. Colloquium, Collaborative Research Centre 562*, pages 107–118, Braunschweig, May, 29-30, 2002.
- [clavel2002-1] Clavel R. and others . A new 5 dof parallel kinematics for production applications. In *Int. Symp. on Robotics*, Stockholm, October, 9-11, 2002.
- [clavel2005] Clavel R. and others . High precision parallel robots for micro-factory applications. In *2nd Int. Colloquium, Collaborative Research Centre 562*, pages 285–296, Braunschweig, May, 10-11, 2005.
- [cleary91] Cleary K. and Arai T. A prototype parallel manipulator: kinematics construction, software, workspace results and singularity analysis. In *IEEE Int. Conf. on Robotics and Automation*, pages 566–571, Sacramento, April, 11-14, 1991.
- [cleary93] Cleary K. and Brooks T. Kinematic analysis of a novel 6-dof parallel manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 708–713, Atlanta, May, 2-6, 1993.
- [cleroux96] Cléroux L. and Gosselin C. Modeling and identification of non-geometric parameters in semi-flexible parallel robots. In *6th ISRAM*, pages 115–120, Montpellier, May, 28-30, 1996.
- [cobet2002] Cobet M. Designing PKMs: working volume, stiffness, frequencies. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 83–103, Chemnitz, April, 23-25, 2002.
- [codourey91] Codourey A. *Contribution à la commande des robots rapides et précis. Application au robot Delta à entraînement direct.* Ph.D. Thesis, EPFL, Lausanne, 1991. n° 922. **Keywords:** hardware, dynamics, control, inverse kinematics, parallel computation.
- [codourey91-1] Codourey A. Control algorithm and controller for the direct drive Delta robot. In *3rd IFAC/IFIP/IMACS Symp. on Robot Control, Syroco*, Vienne, September, 16-18, 1991.
- [codourey97] Codourey A. and Burdet E. A body oriented method for finding a linear form of the dynamic equations of fully parallel robot. In *IEEE Int. Conf. on Robotics and Automation*, pages 1612–1618, Albuquerque, April, 21-28, 1997.
- [colbaugh93] Colbaugh R., Glass K., and Seraji H. Direct adaptive control of robotics systems. In *American Control Conf.*, pages 1138–1143, San Francisco, June, 2-4, 1993.
- [collard2005] Collard J-F., Fiset P., and Duysinx P. Contribution to the optimization of closed-loop multibody systems: application to parallel manipulators. *Multibody System Dynamics*, 13:69–84, 2005.
- [collins95] Collins C.L. and Long G.L. On the duality of twist/wrench in serial and parallel chain robot manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 526–531, Nagoya, May, 25-27, 1995.
- [collins95-1] Collins C.L. and Long G.L. The singularity analysis of an in-parallel hand controller for force-reflected teleoperation. *IEEE Trans. on Robotics and Automation*, 11(5):661–669, October 1995.
- [collins98] Collins C.L. and McCarthy J.M. The quartic singularity surfaces of planar platforms in the Clifford algebra of the projective plane. *Mechanism and Machine Theory*, 33(7):931–944, October 1998.
- [collins2002] Collins C.L. Forward kinematics of planar parallel manipulators in the Clifford algebra of  $P^2$ . *Mechanism and Machine Theory*, 37(8):799–813, August 2002.
- [comin95] Comin F. Six degree-of-freedom scanning supports and manipulators based on parallel robots. *Review of Scientific Instruments*, 66(2):1665–1667, February 1995.
- [company99] Company O. and Pierrot F. A new 3T-1R parallel robot. In *ICAR*, pages 557–562, Tokyo, November 1999.
- [company2000-phd] Company O. *Machines-outils rapides à structure parallèle. Méthodologie de conception, applications et nouveaux concepts.* Ph.D. Thesis, Université Montpellier II, Montpellier, December, 5, 2000. **Keywords:** mechanical architecture, machine-tool.

- [company2002] Company O. and Pierrot F. Modelling and design issues of a 3-axis parallel machine-tool. *Mechanism and Machine Theory*, 37(11):1325–1345, November 2002.
- [company2003] Company O., Marquet F., and Pierrot F. A new high speed 4-dof parallel robot. Synthesis and modeling issues. *IEEE Trans. on Robotics and Automation*, 19(3):411–420, June 2003.
- [company2005] Company O., Pierrot F., and Fauroux J-C. A method for modeling analytical stiffness of a lower mobility parallel manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 3243–3248, Barcelona, April, 19-22, 2005.
- [company2007] Company O., Krut S., and Pierrot F. Analysis of a high resolution planar PKM. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [cone85] Cone L.L. Skycam: an aerial robotic camera system. *Byte*, 10(10), 1985.
- [cong2008] Cong S. and others . *Parallel manipulators, New Developments*, chapter Kinematic parameters auto-calibration of redundant planar 2-dof parallel manipulator, pages 241–268. ITECH, April 2008. **Keywords:** calibration, redundant robot, 2 dof robot, planar robot.
- [constantinescu2000] D. Constantinescu and others . Haptic rendering of planar rigid-body motion using a redundant parallel mechanism. In *IEEE Int. Conf. on Robotics and Automation*, pages 2440–2445, San Francisco, April, 24-28, 2000.
- [conti98] Conti J.P. and others . Workspace variation of a hexapod machine-tool. Research Report 6135, NIST, Gaithersburg, March 1998.
- [coppola2014] Coppola G., Zhang D., and Liu K. A 6-dof reconfigurable hybrid parallel manipulator. *Robotics and Computer-Integrated Manufacturing*, 30:99–106, 2014.
- [corbel2008] Corbel D., Company O., and Pierrot F. Optimal design of a 6-dof parallel measurement mechanism integrated in a 3-dof parallel machine-tool. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 1970–1976, Nice, France, September, 22-26, 2008.
- [corbel2010] Corbel D. and others . Towards 100G with PKM. is actuation redundancy a good solution for pick-and-place? In *IEEE Int. Conf. on Robotics and Automation*, pages 4675–4682, Anchorage, May, 3-8, 2010.
- [corinaldi2018] Corinaldi D. and others . Rotational mobility analysis of the 3-RFR class of spherical parallel robot. In *ARK*, Bologna, July, 1-5, 2018.
- [coronado2017] Coronado L.E. and others . Vision-based control of a Delta parallel robot via linear camera-space manipulation. *J. of Intelligent and Robotic Systems*, 85:93–106, 2017.
- [corradini2004] Corradini C. and others . Evaluation of a 4-degree of freedom parallel manipulator stiffness. In *11th IFToMM World Congress on the Theory of Machines and Mechanisms*, Tianjin, April, 1-4, 2004.
- [corral2010] Corral J. and others . Structural dynamic analysis of low-mobility parallel manipulators. In *3rd European Conf. on Mechanism Science (Eucomes)*, pages 387–394, Cluj-Napoca, September, 14-17, 2010.
- [corral2012] Corral J. and others . Dynamic capabilities of a parallel robot based routing machine. In *ARK*, pages 165–172, Innsbruck, June, 25-28, 2012.
- [corrigan94] Corrigan T.R.J. and Dubowsky S. Emulating micro-gravity in laboratory studies of space robotics. In *ASME Design Automation Technical Conference*, pages 109–116, Minneapolis, September, 11-14, 1994.
- [cortes-2003-phd] Cortés J. *Motion planning algorithms for general closed-chain mechanisms*. Ph.D. Thesis, Institut National Polytechnique de Toulouse, Toulouse, December, 16, 2003. **Keywords:** trajectory planning.
- [cortes2002] Cortés J., Siméon T., and Laumond J-P. A random loop generator for planning the motions of closed kinematic chains using PRM methods. In *IEEE Int. Conf. on Robotics and Automation*, pages 2141–2146, Washington, May, 11-15, 2002.
- [cortes2003] Cortés J. and Siméon T. Probabilistic motion planning for parallel mechanisms. In *IEEE Int. Conf. on Robotics and Automation*, pages 4354–4359, Taipei, September, 14-19, 2003.

- [costanza2016] Costanza A.D. and others . Parallel force/position control of an epicardial parallel wire robot. *IEEE Robotics and Automation Letters*, 1(2), 2016.
- [coste2012] Coste M. Asymptotic singularities of planar parallel 3-RPR manipulators. In *ARK*, pages 35–42, Innsbruck, June, 25-28, 2012.
- [coste2012-1] Coste M., Chablat D., and Wenger P. Perturbation of symmetric 3 – RPR manipulators and asymptotic singularities. In *4th European Conf. on Mechanism Science (Eucomes)*, pages 23–32, Santander, September, 19-21, 2012.
- [coste2014] Coste M., Chablat D., and Wenger P. Non singular change of assembly mode without any cusp. In *ARK*, pages 105–112, Ljubljana, June 29- July 3, 2014.
- [coste2015] Coste M. and Moussa S. On the rationality of the singularity locus of a Gough–Stewart platform - biplanar case. *Mechanism and Machine Theory*, 87:82–92, 2015.
- [coulombe2013] Coulombe J. and Bonev I.A. A new rotary hexapod for micropositioning. In *IEEE Int. Conf. on Robotics and Automation*, pages 877–880, Karlsruhe, May, 6-10, 2013.
- [cox89] Cox D.J. and Tesar D. The dynamic model of a three-degree-of-freedom parallel robotic shoulder module. In *4th ICAR*, pages 475–487, Columbus, Ohio, June, 13-15, 1989.
- [crapo73] Crapo H. A combinatorial perspective on algebraic geometry. In *Colloquio Int. sulle Teorie Combinatorie*, Rome, September, 3-15, 1973.
- [craver89] Craver W.M. Structural analysis and design of a three-degree-of-freedom robotic shoulder module. Master’s thesis, The University of Texas, Austin, 1989. **Keywords:** spherical robot, mechanical architecture, 3 dof robot.
- [cruzruiz2014] Cruz Ruiz A.L. and others . ARACHNIS: analysis of robots actuated by cables with handy and neat interface software. In *2nd Int. Conf. on cable-driven parallel robots (CableCon)*, pages 293–306, Duisburg, August, 24-27, 2014.
- [cuan-urquizo2013] Cuan-Urquizo E. and Rodriguez-Lea E. Kinematic analysis of the 3-CUP parallel mechanism. *Robotics and Computer-Integrated Manufacturing*, 29(5):382–395, October 2013.
- [cuan2013] Cuan-Urquizo E. and Rodriguez-Leal E. Kinematic analysis of the 3-CUP parallel mechanism. *Robotics and Computer-Integrated Manufacturing*, 29(5):382–395, October 2013.
- [cuevas2017] Cuevas J.I.A., Laroche E., and Piccin O. Assumed-mode-based dynamic model for cable robots with non-straight cables. In *3rd Int. Conf. on cable-driven parallel robots (CableCon)*, Québec, 2017.
- [cui-x2014] Cui X. and others . A novel customized cable-driven robot for 3-dof wrist and forearm motion training. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Chicago, September, 14-18, 2014.
- [cui2005] Cui H. and others . Kinematic analysis and error modeling of TAU parallel robot. *Robotics and Computer-Integrated Manufacturing*, 21(6):497–505, December 2005.
- [cui2007] Cui H. and Zhu Z. *Industrial Robotics, Theory, Modelling and Control*, chapter Error modeling and accuracy of parallel industrial robots, pages 573–646. pro literatur Verlag, January 2007. **Keywords:** accuracy, design.
- [cui2008] Cui H. and others . *Parallel manipulators, New Developments*, chapter Error modeling and accuracy of TAU robot, pages 269–282. ITECH, April 2008. **Keywords:** accuracy, jacobian.
- [culla2018] Culla D. and others . Full production plant automation in industry using cable robotics with high load capacities and position accuracy. In *ROBOT 2017: Third Iberian Robotics Conference*, 2018.
- [culpepper2002] Culpepper M.L., Anderson G., and Petri P. Hexflex: a planar mechanism for six-axis manipulation and alignment. In *ASPE 17th Annual Meeting*, St Louis, October, 20-25, 2002.
- [culpepper2002-1] Culpepper M.L., Araque C., and Rodriguez M. Design of accurate and repeatable kinematic couplings. In *ASPE 17th Annual Meeting*, St Louis, October, 20-25, 2002.
- [culpepper2003] Culpepper M.L. and Chen S-C. Design of precision manipulator using binary actuation and differential compliant mechanisms. In *ASPE 18th Annual Meeting*, Portland, October, 26-31, 2003.

- [culpepper2004] Culpepper M.L. and Anderson G. Design of a low-cost nano-manipulator which utilizes a monolithic, spatial compliant mechanism. *Journal of Precision Engineering*, 28(4):469–482, October 2004.
- [culpepper2004-1] Culpepper M.L. and Kim S. A framework and design synthesis tool used to generate and evaluate and optimize compliant mechanism concepts for research and education activities. In *ASME Design Engineering Technical Conference*, Salt Lake City, September 28- October 2, 2004.
- [culpepper2005] Culpepper M.L., Kartik M.V., and DiBiasio C. Design of integrated mechanisms and exact constraint fixtures for micron-level repeatability and accuracy. *Journal of Precision Engineering*, 29(1):65–80, January 2005.
- [cunningham2009] Cunningham D. and Asada H.H. The Winch-Bot: a cable-suspended under-actuated robot utilizing parametric self-excitation. In *IEEE Int. Conf. on Robotics and Automation*, pages 1844–1850, Kobe, May, 14-16, 2009.
- [cunningham2010] Cunningham D. and Asada H.H. Continuous path tracing by a cable-suspended, under-actuated robot; the Winch-Bot. In *IEEE Int. Conf. on Robotics and Automation*, pages 1255–1260, Anchorage, May, 3-8, 2010.
- [cuvillon2020] Cuvillon L., Weber X., and Gangloff J. Modal control for active vibration damping of cable-driven parallel robots. *J. of Mechanisms and Robotics*, 12(5), October 2020.
- [cvetanovic2014] Cvetanovic C. and Laroche E. Towards DAE methodology for the control of cable-driven parallel robots. In *IEEE Int. Conf. on Control Applications*, Antibes, October, 8-10, 2014.
- [czapalay2019] Czapalay E. and others . Wrench analysis of cable-suspended parallel robots actuated by quadrotors UAVs. *J. of Mechanisms and Robotics*, 11(2), 2019.
- [czwielong2002] Czwielong T. and Zarske W. Pegasus: incorporating PKM into woodworking. In *2nd NCG Application Conf. on Parallel Kinematics Machine*, pages 843–856, Chemnitz, April, 23-25, 2002.
- [dadarlat2012] Dadarlat R. and others . Workspace and singularity point analysis of a 6-dof parallel mechanism with two kinematic chains for platform guidance. In *4th European Conf. on Mechanism Science (Eucomes)*, pages 33–41, Santander, September, 19-21, 2012.
- [dafaoui94] Dafaoui M., Amirat Y., Pontnau J., and Francois C. Manipulateur parallèle à six degrés de liberté: modèles et volume de travail. *Revue d'Automatique et de Productique Appliquée*, 7(2):195–220, 1994.
- [dafaoui98] Dafaoui M., Amirat Y., Pontnau J., and Francois C. Analysis and design of a six-dof parallel manipulator, modeling, singular configurations and workspace. *IEEE Trans. on Robotics and Automation*, 14(1):78–92, February 1998.
- [dagalakakis89] Dagalakakis N.G. and others . Robot Crane Technology (final report). Research Report 1267, NIST, July 1989.
- [dagalakakis89-1] Dagalakakis N.G. and others . Stiffness study of a parallel link robot crane for shipbuilding applications. *J. of Offshore Mechanics and Arctic Engineering*, 111(3):183–193, August 1989.
- [dagalakakis2001] Dagalakakis N.G. and Amatucci F. Kinematic modeling of a 6 degree-of-freedom tri-stage micro-positionner. In *ASPE 16th Annual Meeting*, Cristal City, November, 10-15, 2001.
- [dahmouche2010] Dahmouche R. and others . Efficient high-speed vision-based computed torque control of the Orthoglide parallel robot. In *IEEE Int. Conf. on Robotics and Automation*, pages 644–649, Anchorage, May, 3-8, 2010.
- [dahmouche2020] Dahmouche R., Wen K., and Gosselin C. Transferability in an 8-dof parallel robot with a configurable platform. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Las Vegas, October, 25-29, 2020.
- [dai-h2019] Dai H., Izan G., and Tedrake R. Global inverse kinematics via mixed-integer convex optimization. *Int. J. of Robotics Research*, 38(12-13):1420–1441, 2019.
- [dai-hs2004] Dai H.S., Zhao T., and Nester C. Sprained ankle physiotherapy based mechanism synthesis and stiffness analysis of a robotic rehabilitation device. *Autonomous Robots*, 16(1):207–218, July 2004.

- [dai2006] Dai J.S. and Ding X. Compliance analysis of a three-legged rigidly-connected platform device. *ASME J. of Mechanical Design*, 128(4):755–764, July 2006.
- [dallalibera2014] Dallalibera F. and Ishiguro H. Non-singular transitions between assembly modes of 2-dof planar parallel manipulators with a passive leg. *Mechanism and Machine Theory*, 77:182–197, 2014.
- [dallefrate2002] Dallefrate D. and others . A feed rate optimization technique for high-speed CNC machining with parallel manipulators. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 371–388, Chemnitz, April, 23-25, 2002.
- [dallej2006-1] Dallej T., Andreff N., and Martinet P. 3d pose visual servoing relieves parallel robot control from joint sensing. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Beijing, October, 9-15, 2006.
- [dallej2006] Dallej T., Andreff N., and Martinet P. Kinematic calibration of a Gough-Stewart platform using an omnidirectional camera. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Beijing, October, 9-15, 2006.
- [dallej2007] Dallej T., Andreff N., and Martinet P. Toward a generic kinematic model for vision-based control of parallel kinematic machines. In *2nd Int. Congress, Design and Modelling of mechanical systems*, Monastir, March, 19-21, 2007.
- [dallej2007-1] Dallej T., Andreff N., and Martinet P. Image-based visual servoing of the I4R parallel robot without proprioceptive sensors. In *IEEE Int. Conf. on Robotics and Automation*, pages 1709–1714, Roma, April, 10-14, 2007.
- [dallej2007-2] Dallej T., Andreff N., and Martinet P. Towards a generic image-based visual servoing of parallel robots using legs observation. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [dallej2011] Dallej T. and others . Towards vision-based control of cable-driven parallel robots. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, San-Francisco, September, 25-30, 2011.
- [dallej2012] Dallej T. and others . Vision-based modeling and control of large dimension cable-driven parallel robot. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 1581–1586, Vilamoura, October, 7-12, 2012.
- [dallej2018] Dallej T., Andreff N., and Martinet P. Contribution to generic modeling and vision-based control of a broad class of fully parallel robots. *Robotica*, 36:1874–1896, 2018.
- [dalvand2012] Dalvand M.M. and Shirinzadeh B. Remote centre-of-motion control algorithms of 6-RR/CRR parallel robot assisted surgery system. In *IEEE Int. Conf. on Robotics and Automation*, pages 3401–3406, Saint Paul, May, 14-18, 2012.
- [dandurand84] Dandurand A. The rigidity of compound spatial grid. *Structural Topology* 10, pages 43–55, 1984.
- [danescu94] Danescu G. and Dahan M. to be checked, January, 3, 1994. Pro!egomènes n° 6 (INRIA). **Keywords:** forward kinematics.
- [danescu94-1] Danescu G., Jacquet P., and Dahan M. A method for the design of parallel structures. In *2nd Japan-France Congress on Mechatronics*, pages 671–674, Takamatsu, November, 1-3, 1994.
- [danescu94-2] Danescu G., Jacquet P., and Dahan M. A solution for the spatial mechanism design. In *IASTED Int. Conf., Applied Modeling and Simulation*, Lugano, June, 20-22, 1994.
- [danescu95] Danescu G. *Une méthode algébrique de synthèse et conception de mécanismes articulés*. Ph.D. Thesis, Université de Franche-Comté, Besançon, June, 22, 1995. **Keywords:** design theory, structural synthesis.
- [daney98] Daney D. Mobility constraints on the legs of a parallel robot to improve the kinematic calibration. In *New machine concepts for handling and manufacturing devices on the basis of parallel structures*, pages 187–200, Braunschweig, November, 10-11, 1998.
- [daney99] Daney D. Self calibration of Gough platform using leg mobility constraints. In *10th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 104–109, Oulu, June, 20-24, 1999.

- [daney2000-phd] Daney D. *Etalonnage géométrique des robots parallèles*. Ph.D. Thesis, Université de Nice, Nice, February, 2, 2000. **Keywords:** calibration.
- [daney2001] Daney D. and Emiris I.Z. Variable elimination for reliable parallel robot calibration. In F.C. Park C.C. Iurascu, editor, *Computational Kinematics*, pages 133–144. EJCK, May, 20–22, 2001. **Keywords:** calibration.
- [daney2001-1] Daney D. and Emiris I.Z. Robust parallel robot calibration with partial information. In *IEEE Int. Conf. on Robotics and Automation*, pages 3262–3267, Seoul, May, 23–25, 2001.
- [daney2002] Daney D. Optimal measurement configurations for Gough platform calibration. In *IEEE Int. Conf. on Robotics and Automation*, pages 147–152, Washington, May, 11–15, 2002.
- [daney2003] Daney D. Kinematic calibration of the Gough platform. *Robotica*, 21(6):677–690, December 2003.
- [daney2004] Daney D., Papegay Y., and Neumaier A. Interval methods for certification of the kinematic calibration of parallel robots. In *IEEE Int. Conf. on Robotics and Automation*, pages 1913–1918, New Orleans, April, 28–30, 2004.
- [daney2004-1] Daney D. and Emiris I.Z. Algebraic elimination for parallel robot calibration. In *11th IFToMM World Congress on the Theory of Machines and Mechanisms*, Tianjin, April, 1–4, 2004.
- [daney2005] Daney D., Andreff N., and Papegay Y. Interval method for calibration of parallel robots: a vision-based experimentation. In *Computational Kinematics*, Cassino, May, 4–6, 2005.
- [daney2005-1] Daney D., Papegay Y., and Madeline B. Choosing measurement poses for robot calibration with the local convergence method and Tabu search. *Int. J. of Robotics Research*, 24(6):501–518, June 2005.
- [daney2006] Daney D. and others . Calibration of parallel robots: on the elimination of pose-dependent parameters. In *1st European Conf. on Mechanism Science (Eucomes)*, Obergurgl, February, 21–26, 2006.
- [daney2006-1] Daney D., Andreff N., Chabert G., and Papegay Y. Interval method for calibration of parallel robots: a vision-based experimentation. *Mechanism and Machine Theory*, 41(8):929–944, August 2006.
- [daney2016-h] Daney D. De l’amélioration des performances des robots manipulateurs, June, 20, 2016. Habilitation à diriger les recherches, Université de Nice. **Keywords:** calibration.
- [dangella2011] D’Angella S. and others . Modeling and control of a parallel robot for needle surgery. In *IEEE Int. Conf. on Robotics and Automation*, Shangai, May, 9–13, 2011.
- [dani93] Daniali H.R.M., Zsombor-Murray P.J., and Angeles J. The kinematics of a 3 d.o.f. planar and spherical double-triangular parallel manipulators. In J. Angeles P. Kovacs, G. Hommel, editor, *Computational Kinematics*, pages 153–164. Kluwer, 1993. **Keywords:** forward kinematics.
- [dani95] Daniali H.R.M., Zsombor-Murray P.J., and Angeles J. Singularity analysis of a general class of planar parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 1547–1552, Nagoya, May, 25–27, 1995.
- [daniel93] Daniel R.W., Fischer P.J., and Hunter B. A high performance parallel input device. In *SPIE, Telemanipulator Technology and Space Telerobotics*, pages 272–281, Boston, September, 3–9, 1993.
- [daniel2006] Daniel R. and Dunlop R. A geometrical interpretation of 3-3 mechanism singularity. In *ARK*, pages 285–294, Ljubljana, June, 26–29, 2006.
- [dasgupta94] Dasgupta B. and Mruthyunjaya T.S. A canonical formulation of the direct position kinematics for a general 6-6 Stewart platform. *Mechanism and Machine Theory*, 29(6):819–827, August 1994.
- [dasgupta96] Dasgupta B. and Mruthyunjaya T.S. A constructive predictor-corrector algorithm for the direct position kinematic problem for a general 6-6 Stewart platform. *Mechanism and Machine Theory*, 31(6):799–811, August 1996.
- [dasgupta98] Dasgupta B. and Mruthyunjaya T.S. Singularity-free path planning for the Stewart platform manipulator. *Mechanism and Machine Theory*, 33(6):711–725, August 1998.

- [dasgupta98-1] Dasgupta B. and Mruthyunjaya T.S. Force redundancy in parallel manipulators: theoretical and practical issues. *Mechanism and Machine Theory*, 33(6):727–742, August 1998.
- [dasgupta98-2] Dasgupta B. and Mruthyunjaya T.S. Closed-form dynamic equations of the general Stewart platform through the Newton-Euler approach. *Mechanism and Machine Theory*, 33(7):993–1011, October 1998.
- [dasgupta98-3] Dasgupta B. and Mruthyunjaya T.S. A Newton-Euler formulation for the inverse dynamics of the Stewart platform manipulator. *Mechanism and Machine Theory*, 33(8):1135–1152, November 1998.
- [dasgupta99] Dasgupta B. and Choudhury P. A general strategy based on the Newton-Euler approach for the dynamic formulation of parallel manipulators. *Mechanism and Machine Theory*, 34(6):801–824, August 1999.
- [dasgupta2000] Dasgupta B. and Mruthyunjaya T.S. The Stewart platform manipulator: a review. *Mechanism and Machine Theory*, 35(1):15–40, February 2000.
- [dash2002] Dash A.K. and others . Workspace analysis and singularity-free path planning of parallel manipulators. In *Int. Conf. on Mechatronics Technology (ICMT)*, pages 457–462, Fukuoka, September 29- October 3, 2002.
- [dash2003] Dash A.K. and others . Singularity-free path planning of parallel manipulators using clustering algorithm and line geometrie. In *IEEE Int. Conf. on Robotics and Automation*, pages 761–766, Taipei, September, 14-19, 2003.
- [dash2004] Dash A.K. and others . Instantaneous kinematics and singularity analysis of three-legged parallel manipulators. *Robotica*, 22(2):189–203, March 2004.
- [dash2005] Dash A.K. and others . Workspace generation and planning singularity-free path for parallel manipulators. *Mechanism and Machine Theory*, 40(7):778–805, July 2005.
- [dasilva2010] Da Silva M.M. and others . Integrating structural and input design of a 2-dof high-speed parallel manipulator: a flexible model-based approach. *Mechanism and Machine Theory*, 45(11):1509–1519, November 2010.
- [dasilva2024] Da Silva M.M. and others . Hybrid vision/strain-based control strategy for a parallel manipulator with flexible links. *Mechanism and Machine Theory*, 191, 2024.
- [dastjerdi2020] Dasterji A.H., Sheikhi M.M., and Masoulet M.T. A complete analytical solution for the dimensional synthesis of 3-dof delta parallel robot for a prescribed workspace. *Mechanism and Machine Theory*, 153, 2020.
- [davis-cm2015] Davis C.M., Park K., and Desai J.P. Design and analysis of an under-actuated xy-theta stage for automated tissue indentation. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 4331–4336, Hamburg, Germany, September 28- October 2, 2015.
- [davis93] Davis A.T. and Bradshaw A. Solution and transputer computation of the forward geometry of a manipulator with fully parallel architecture. In Warwick K., editor, *Robotics: applied mathematics and computational aspects*, pages 391–402. Oxford University Press, 1993. **Keywords:** forward kinematics, hardware.
- [davliakos2008] Davliakos I. and Papadopoulos E. Model-based control of a 6-dof electrohydraulic Stewart-Gough platform. *Mechanism and Machine Theory*, 43(11):1385–1400, November 2008.
- [davliakos2009] Davliakos I. and Papadopoulos E. Impedance model-based control for an electrohydraulic stewart platform. *European Journal of Control*, 5:560–567, 2009.
- [deblaise2005] Deblaise D. and Maurinne P. Effective geometrical calibration of a delta parallel robot used in neurosurgery. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Edmonton, August, 2-6, 2005.
- [deblaise2006] Deblaise D. and Maurinne P. Analytical modeling of redundant PKM stiffness using matrix structural analysis. In *5th Chemnitz Parallelkinematik Seminar*, pages 155–174, Chemnitz, April, 25-26, 2006.
- [deblaise2006-1] Deblaise D., Hernot X., and Maurinne P. A systematic analytical method for PKM stiffness matrix calculation. In *IEEE Int. Conf. on Robotics and Automation*, pages 4213–4219, Orlando, May, 16-18, 2006.
- [dedieu90] Dedieu J-P and Norton G.H. Stewart varieties: a direct algebraic method for Stewart platforms. *SigSam*, 24(4):42–59, October 1990.



- [degani2006] Degani A. and Wolf A. Graphical singularity analysis of 3-dof planar parallel manipulators. In *ARK*, pages 229–238, Ljubljana, June, 26-29, 2006.
- [degani2006-1] Degani A. and Wolf A. Graphical singularity analysis of planar parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 751–758, Orlando, May, 16-18, 2006.
- [degirmenci2015] Degirmenci A. and others . Design and control of a parallel linkage wrist for robotic microsurgery. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Hamburg, Germany, September 28- October 2, 2015.
- [degre88] Degré Y. Robot  $\nabla$  6. Research report, ENSAIT, Roubaix, France, August, 9, 1988.
- [degre93] Degré Y. and Castelain J-M. Conception d’un robot à trois degré de liberté et huit liaisons mécaniques axiales. In *11eme Congrès Français de Mécanique*, pages 373–376, Lille, 1993.
- [dehghani2008] Dehghani M. and others . *Parallel manipulators, New Developments*, chapter Neural network solutions for forward kinematics problem of HEXA parallel robot, pages 296–314. ITECH, April 2008. **Keywords:** forward kinematics, neurons networks.
- [dehghani2008-1] Dehghani M. and others . Neural network solutions for forward kinematics problem of HEXA parallel robot. In *American Control Conference*, Washington, June, 11-13, 2008.
- [dehkordi2012] Dehkordi M.B. and others . A new algorithm for gravity compensation of a 3-UPU parallel manipulator. In *RoManSy*, pages 32–40, Paris, June, 12-15, 2012.
- [deidda2010] Deidda R., Marian A., and Ruggiu M. On the kinematics of the 3-*RRUR* spherical parallel manipulator. *Robotica*, 28(6):821–832, October 2010.
- [dejuan2010] De-Juan A. and others . Multi-objective optimization of parallel manipulators. In *3rd European Conf. on Mechanism Science (Eucomes)*, pages 633–644, Cluj-Napoca, September, 14-17, 2010.
- [deng2023] Deng Z., Zhang Y., and Yan S. Type synthesis of metamorphic and axisymmetric parallel mechanisms using singularity for deployment and latch. *Mechanism and Machine Theory*, 189, 2023.
- [denkena2006] Denkena B. and others . Force calculation of a statically overdetermined parallel kinematic design of an adaptronic spindle system. In *5th Chemnitzer Parallelkinematik Seminar*, pages 307–324, Chemnitz, April, 25-26, 2006.
- [denkena2006-1] Denkena B. and Holz C. Advanced position and force control concepts for the linear direct driven hexapod PaLiDA. In *5th Chemnitzer Parallelkinematik Seminar*, pages 359–378, Chemnitz, April, 25-26, 2006.
- [derijk2018] De Rijk R., Rushton M., and Khajepour A. Out-of-plane vibration control of a planar cable-driven parallel robot. *IEEE/ASME Trans. on Mechatronics*, 23(4), 2018.
- [desapio2006] De Sapio V., Holzbaur K., and Oussama K. The control of kinematically constrained shoulder complexes: Physiological and humanoid examples. In *IEEE Int. Conf. on Robotics and Automation*, pages 2952–2959, Orlando, May, 16-18, 2006.
- [detweiler2006] Detweiler C. and others . Hierarchical control for self-assembling mobile trusses with passive and active links. In *IEEE Int. Conf. on Robotics and Automation*, pages 1483–1490, Orlando, May, 16-18, 2006.
- [devaquet92] Devaquet G. and Brauchli H. A simple mechanical model for the Delta-robot. *Robotersysteme*, 8(4):193–199, 1992.
- [devita2007] De Vita L.M., Plante J.S., and Dubowsky S. The design of high precision parallel mechanisms using binary actuation and elastic averaging: With application to MRI cancer treatment. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [dhingra2000] Dhingra A.K., Almadi A.N., and Kohli D. A Gröbner-Sylvester hybrid method for closed-form displacement analysis of mechanisms. *ASME J. of Mechanical Design*, 122(4):431–438, December 2000.
- [dhingra92] Dhingra A., Kohli D., and Xu Y.X. Direct kinematic of general Stewart platforms. In *22nd Biennial Mechanisms Conf.*, pages 107–112, Scottsdale, September, 13-16, 1992.

- [diao2006] Diao X. and Ma O. Workspace analysis of a 6-dof cable robot for hardware-in-the-loop dynamic simulation. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Beijing, October, 9-15, 2006.
- [diao2007] Diao X. and Ma O. A method for verifying force-closure condition for general cable manipulators with seven cables. *Mechanism and Machine Theory*, 42(12):1563–1576, December 2007.
- [diao2007-1] Diao X. and Ma O. Force-closure analysis of general 6-dof cable manipulators. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 3931–3936, San Diego, September, 22-26, 2007.
- [diao2008] Diao X. and Ma O. Workspace determination of general 6 d.o.f. cable manipulators. *Advanced Robotics*, 22(2-3):261–278, 2008.
- [diao2008-1] Diao X., Ma O., and Lu Q. Singularity analysis of planar cable-driven parallel robots. In *IEEE Conference on Robotics, Automation and Mechatronics*, pages 272–277, Chengdu, September 2008.
- [diao2009] Diao X. and Ma O. Force closure analysis of 6 dof cable manipulators with seven or more cables. *Robotica*, 27(2):209–215, March 2009.
- [diao2015] Diao X. Singularity analysis of fully-constrained cable-driven parallel robots with seven cables. In *IEEE International Conference on Mechatronics and Automation (ICMA)*, pages 1537–1541, Beijing, August 2015.
- [diaz-rodriguez2008] Díaz-Rodríguez M. and others . Identifiability of the dynamic parameters of a class of parallel robots in the presence of measurement noise and modeling discrepancy. *Mechanics Based Design of Structures and Machines*, 36(4):478–498, 2008.
- [diaz-rodriguez2009] Díaz-Rodríguez M. and others . On the experiment design for direct dynamic parameter identification of parallel robots. *Advanced Robotics*, 23(3):329–348, 2009.
- [diaz-rodriguez2010] Díaz-Rodríguez M. and others . A methodology for dynamic parameters identification of a 3-dof parallel robot in terms of relevant parameters. *Mechanism and Machine Theory*, 45(9):1337–1356, October 2010.
- [diaz-rodriguez2012] Díaz-Rodríguez M. and others . On the conditioning of the observation matrix for dynamic parameters identification of parallel robots. In *RoManSy*, Paris, June, 12-15, 2012.
- [diaz-rodriguez2013] Díaz-Rodríguez M. and others . Model-based control of a 3-DOF parallel robot based on identified relevant parameters. *IEEE/ASME Trans. on Mechatronics*, 18(6), 2013.
- [diaz-rodriguez2016] Díaz-Rodríguez M., Carretero J.A., and Bautista-Quintero R. Solving the dynamic equations of a 3-prs parallel manipulator for efficient model-based designs. *Mechanical Sciences*, 7:1337–1356, 2016.
- [dibakar99] Dibakar S. and Mruthyunjaya T.S. A computational geometry approach for determination of boundary of workspaces of planar manipulators with arbitrary topology. *Mechanism and Machine Theory*, 34(1):149–169, January 1999.
- [didrit97] Didrit O. *Analyse par intervalles pour l’automatique; Résolution globale et garantie de problèmes non linéaires en robotique et en commande robuste*. Ph.D. Thesis, Université Paris XI Orsay, Paris, June, 30, 1997. **Keywords:** forward kinematics.
- [didrit98] Didrit O., Petitot M., and Walter E. Guaranteed solution of direct kinematic problems for general configurations of parallel manipulator. *IEEE Trans. on Robotics and Automation*, 14(2):259–266, April 1998.
- [dierichs2019] Dierichs K. and others . Construction robotics for designed granular materials: in situ construction with designed granular materials at full architectural scale using a cable-driven parallel robot. *Construction Robotics*, October 2019.
- [dietmaier94] Dietmaier P. An inverse force analysis of a spatial three-spring system. In *ARK*, pages 261–270, Ljubljana, July, 4-6, 1994.
- [dietmaier96] Dietmaier P. Forward kinematics and mobility of one type of symmetric Stewart-Gough platforms. In *ARK*, pages 379–388, Portoroz-Bernadin, June, 22-26, 1996.
- [dietmaier98] Dietmaier P. The Stewart-Gough platform of general geometry can have 40 real postures. In *ARK*, pages 7–16, Strobl, June 29- July 4, 1998.

- [dietrich2010] Dietrich F. and others . An autonomous and safe homing strategy for parallel kinematic five-bar manipulators. In *ARK*, pages 501–508, Piran, June 28- July 1, 2010.
- [dietrich2012] Dietrich F., Grüner S., and Raatz A. A generic software architecture for control of parallel kinematics designed for reduced computing hardware. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Vilamoura, October, 7-12, 2012.
- [diezinger2023] Diezinger M., Tamadazte B., and Laurent G.J. Trirod: A 3-RF continuum parallel robot for shape-based load estimation. *IEEE Robotics and Automation Letters*, 8(11):7265–7272, November 2023.
- [digregorio98] Di Gregorio R. and Parenti-Castelli V. A translationnal 3-dof parallel manipulator. In *ARK*, pages 49–58, Strobl, June 29- July 4, 1998.
- [digregorio2000] Di Gregorio R. and Parenti-Castelli V. Mobility analysis of the 3-PSP mechanism. In *13th RoManSy*, pages 113–120, Zakopane, July, 3-6, 2000.
- [digregorio2001] Di Gregorio R. A new parallel wrist using only revolute pairs: the 3-RUU wrist. *Robotica*, 19(3):305–309, May 2001.
- [digregorio2001-1] Di Gregorio R. and Parenti-Castelli V. Position analysis in analytical form of the 3-PSP mechanism. *ASME J. of Mechanical Design*, 123(1):51–55, March 2001.
- [digregorio2001-2] Di Gregorio R. and Parenti-Castelli V. Kinematics of a six-dof fixation device for long-bone fracture reduction. *J. of Robotic Systems*, 18(12):715–722, 2001.
- [digregorio2001-3] Di Gregorio R. Analytic formulation of the 6-3 fully-parallel manipulator’s singularity determination. *Robotica*, 19(6):663–667, September 2001.
- [digregorio2002] Di Gregorio R. and Parenti-Castelli V. Mobility analysis of the 3-UPU parallel mechanism assembled for a pure translational motion. *ASME J. of Mechanical Design*, 124(2):259–264, June 2002.
- [digregorio2002-1] Di Gregorio R. and Parenti-Castelli V. Geometric error effects on the performances of a parallel wrist. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 1011–1024, Chemnitz, April, 23-25, 2002.
- [digregorio2002-2] Di Gregorio R. Translational parallel manipulators: new proposals. *J. of Robotic Systems*, 19(12):595–603, 2002.
- [digregorio2002-3] Di Gregorio R. Singularity locus expression of a class of parallel mechanisms. *Robotica*, 20(3):323–328, 2002.
- [digregorio2002-4] Di Gregorio R. Dynamic performance indices for 3-dof parallel manipulators. In *ARK*, pages 11–20, Caldes de Malavalla, June 29- July 2, 2002.
- [digregorio2002-5] Di Gregorio R. A new family of spherical parallel manipulators. *Robotica*, 20(4):353–358, July 2002.
- [digregorio2002-6] Di Gregorio R. and Parenti-Castelli V. Dynamics of a class of parallel wrists. In *ASME 27th Biennial Mechanisms and Robotics Conf.*, Montréal, September 29- October 2, 2002.
- [digregorio2002-7] Di Gregorio R. and Parenti-Castelli V. The 3-RRS wrist: a new, very simple and not overconstrained sperical parallel wrist. In *ASME 27th Biennial Mechanisms and Robotics Conf.*, Montréal, September 29- October 2, 2002.
- [digregorio2002-8] Di Gregorio R. Rotation singularities in the Delta-like manipulators. In *ASME Design Engineering Technical Conference*, Montréal, September 29- October 2, 2002.
- [digregorio2003] Di Gregorio R. and Zanforlin R. Workspace analytic determination of two similar translational parallel manipulators. *Robotica*, 21(5):555–566, October 2003.
- [digregorio2003-1] Di Gregorio R. Inverse position analysis, workspace and position synthesis of parallel manipulators with 3-RSR topology. *Robotica*, 21(6):627–632, December 2003.
- [digregorio2003-2] Di Gregorio R. Kinematics of the 3-UPU wrist. *Mechanism and Machine Theory*, 38(3):253–263, March 2003.

- [digregorio2003-3] Di Gregorio R. Kinematics of the 3-RSR wrist. In *11th ICAR*, pages 1769–1774, Coimbra, June 30- July 3, 2003.
- [digregorio2003-4] Di Gregorio R. Direct kinematics of a class of 3-dof parallel manipulators. In *11th ICAR*, pages 550–555, Coimbra, June 30- July 3, 2003.
- [digregorio2003-5] Di Gregorio R. and Parenti-Castelli V. On the multiple solutions of the direct position analysis of parallel mechanisms. In *RAAD*, Cassino, May, 7-10, 2003.
- [digregorio2003-6] Di Gregorio R. Static analysis and performance indices of the 3-RRS wrist. In *RAAD*, Cassino, May, 7-10, 2003.
- [digregorio2004] Di Gregorio R. Kinematics of the 3-RSR wrist. *IEEE Trans. on Robotics*, 20(4):750–754, August 2004.
- [digregorio2004-1] Di Gregorio R. and Parenti-Castelli V. Dynamics of a class of parallel wrists. *ASME J. of Mechanical Design*, 126(3):436–441, May 2004.
- [digregorio2004-2] Di Gregorio R. Forward problem singularities of manipulators which become PS-2RS or 2PS-RS structures when the actuators are locked. *ASME J. of Mechanical Design*, 126(4):640–645, July 2004.
- [digregorio2004-3] Di Gregorio R. Statics and singularity loci of the 3-UPU wrist. *IEEE Trans. on Robotics*, 20(4):630–635, August 2004.
- [digregorio2004-4] Di Gregorio R. Kinematics of the translational 3-URC mechanism. *ASME J. of Mechanical Design*, 126(6):1113–1117, November 2004.
- [digregorio2004-5] Di Gregorio R. On the direct problem singularities of a class of 3-DOF parallel manipulators. *Robotica*, 22(4):389–394, 2004.
- [digregorio2004-6] Di Gregorio R. Determination of singularities in Delta-like manipulators. *Int. J. of Robotics Research*, 23(1):89–96, January 2004.
- [digregorio2005] Di Gregorio R. Forward problem singularities in parallel manipulators which generate SX-YS-ZS structures. *Mechanism and Machine Theory*, 40(5):600–612, May 2005.
- [digregorio2006] Di Gregorio R. and Parenti-Castelli V. Dynamic performance evaluation and design of 3 and less-than-3 degrees of freedom parallel manipulators. In *5th Chemnitzer Parallelkinematik Seminar*, pages 213–231, Chemnitz, April, 25-26, 2006.
- [digregorio2006-1] Di Gregorio R. and Parenti-Castelli V. Parallel mechanisms for knee orthoses with selective recovery action. In *ARK*, pages 167–176, Ljubljana, June, 26-29, 2006.
- [digregorio2006-2] Di Gregorio R. Analytic form solution of the forward position analysis of three-legged parallel mechanisms generating SR-PS-RS structures. *Mechanism and Machine Theory*, 41(9):1062–1071, September 2006.
- [digregorio2006-3] Di Gregorio R. Closure to “discussion of ‘Kinematics of the ‘ translational 3-URC mechanism’” (2006,asme j. mech. des.,128,pp 812-813). *ASME J. of Mechanical Design*, 128(4):814, July 2006.
- [digregorio2006-4] Di Gregorio R. Analytic form solution of the direct position analysis of a wide family of three-legged parallel manipulators. *ASME J. of Mechanical Design*, 128(1):264–271, January 2006.
- [digregorio2006-5] Di Gregorio R. Forward position analysis of the SP-PS-RS architecture. *Int. J. of Robotics and Automation*, 21(4):295–301, 2006.
- [digregorio2007] Di Gregorio R. *Industrial Robotics, Theory, Modelling and Control*, chapter Parallel manipulator with lower mobility, pages 557–572. pro literatur Verlag, January 2007. **Keywords:** structural synthesis,state of the art.
- [digregorio2010] Di Gregorio R. Singularity locus of 6-4 fully-parallel manipulators. In *ARK*, pages 437–448, Piran, June 28- July 1, 2010.

- [digregorio2012] Di Gregorio R. Classification of the singularity loci of m-n fully-parallel manipulators. In *ARK*, pages 43–50, Innsbruck, June, 25-28, 2012.
- [digregorio2014] Di Gregorio R. A deployable parallel wrist with simple kinematics. In *ARK*, pages 51–59, Ljubljana, June 29- July 3, 2014.
- [digregorio2014-1] Di Gregorio R. Position analysis, path planning and kinetostatic of single loop  $\underline{RU} - (nS)\underline{PU}$  wrists. *Mechanism and Machine Theory*, 74:117–133, 2014.
- [digregorio2017] Di Gregorio R. Kinematics analysis and singularities of novel decoupled parallel manipulators with simplified architecture. *Robotica*, 35:961–979, 2017.
- [dindorf2019] Dindorf R. and Wos P. Control of integrated electro-hydraulic servo-drives in a translational parallel manipulator. *Journal of Mechanical Science and Technology*, 33(11):5437–5448, 2019.
- [ding-h2015] Ding H. and others . Computer aided structure synthesis of 5-dof parallel mechanisms and the establishment of kinematic structure databases. *Mechanism and Machine Theory*, 83:14–30, 2015.
- [ding-y2020] Ding Y. and others . A human-guided vision-based measurement system for multi-station robotic motion platform based on V-Rep. *Robotica*, 38:1227–1241, 2020.
- [ding2013] Ding B. and others . Active preload control of a redundantly actuated Stewart platform for backlash prevention. In *IEEE Int. Conf. on Robotics and Automation*, pages 1900–1907, Karlsruhe, May, 6-10, 2013.
- [ding2015] Ding B. and others . Active preload control of a redundantly actuated Stewart platform for backlash prevention. *Robotics and Computer-Integrated Manufacturing*, 32:11–24, April 2015.
- [dion-gauvin2017] Dion-Gauvin P. and Gosselin C. Trajectory planning for the static to dynamic transition of point-mass cable-suspended parallel mechanisms. *Mechanism and Machine Theory*, pages 158–178, July 2017.
- [do88] Do W.Q.D. and Yang D.C.H. Inverse dynamic analysis and simulation of a platform type of robot. *J. of Robotic Systems*, 5(3):209–227, 1988.
- [dohner96] Dohner J.L. Active chatter suppression in an octahedral hexapod milling machine. *Proc. of the SPIE*, 2721:316–325, 1996.
- [dombre2001] Pierrot F. and Merlet J-P. *Analyse et modélisation des robots manipulateurs*, chapter Modélisation des robot parallèles, pages 93–144. Hermès, Paris, 2001. sous la direction d’E. Dombre.
- [dominjon2007] Dominjon L., Perret J., and Lécuyer A. Novel devices and interaction techniques for human-scale haptics. *Visual Computer*, 23(4):257–266, April 2007.
- [donelan2007] Donelan P.S. Singularity-theoretic methods in robot kinematics. *Robotica*, 25(6):641–659, November 2007.
- [dong-c2018] Dong C. and others . Stiffness modeling and analysis of a novel 5-DOF hybrid robot. *Mechanism and Machine Theory*, 125:80–93, July 2018.
- [dong-g-2016] Dong G. and others . Mobility analysis and kinematic synthesis of a novel 4-dof parallel manipulator. *Robotica*, 34:1010–1025, 2016.
- [dong-j2008] Dong J., Salapaka S.M., and Ferreira P.M. Robust control of a parallel kinematic nanopositionner. *ASME J. of Dynamic Systems, Measurement and Control*, 130(4):041007–1/15, July 2008.
- [dong-y2016] Dong Y., Gao F., and Yue Y. Modeling and experimental study of a novel 3-RPR parallel micro-manipulator. *Robotics and Computer-Integrated Manufacturing*, 37:115–124, February 2016.
- [dong2005] Dong W., Du Z., and Sun L. Conceptual design and kinematics modeling of a wide-range flexure hinge-based parallel manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 4042–4047, Barcelona, April, 19-22, 2005.
- [dongsheng2018] Dongsheng Z. and others. Design of a novel 5-dof hybrid serial-parallel manipulator and theoretical analysis of its parallel part. *Robotics and Computer-Integrated Manufacturing*, 53:228–239, 2018.

- [donohoe2016] Donohoe S.P. and others . Mechatronic implementation of a force optimal underconstrained planar cable robot. *IEEE/ASME Trans. on Mechatronics*, 21(1), 2016.
- [dorsey92] Dorsey J.T., Sutter T.R., and Wu K.C. Structurally adaptive space crane concept for assembling space systems on orbit. Research Report TP-3307, NASA Research Center, Langley, November 1992.
- [douady91] Douady D. *Contribution à la modélisation des robots parallèles: conception d'un nouveau robot à 3 liaisons et six degrés de liberté*. Ph.D. Thesis, Université Paris VI, Paris, December, 9, 1991. **Keywords:** mechanical architecture, 6 dof robot, kinematics, singularity, design.
- [douat2010] Douat L.R. and others . Flexible model identification of the parallel robot Par2. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Taipei, October, 18-22, 2010.
- [dovat2008] Dovat L. and others . HandCARE: a cable-actuated rehabilitation system to train hand function after stroke. *IEEE Trans. on Neural Systems and Rehabilitation Engineering*, 16(6), 2008.
- [downing2002] Downing D.M., Samuel A.E., and Hunt K.H. Identification of the special configurations of the octahedral manipulators using the pure condition. *Int. J. of Robotics Research*, 21(2):147–159, February 2002.
- [dressler2007] Dressler I., Robertsson A., and Johansson R. Accuracy of kinematic and dynamic models of a Gantry-Tau parallel kinematic robot. In *IEEE Int. Conf. on Robotics and Automation*, pages 883–888, Roma, April, 10-14, 2007.
- [dressler2008] Dressler I., Robertsson A., and Johansson R. Automatic kinematic calibration of a modular Gantry-Tau parallel robot from a kinematics point of view. In *IEEE Int. Conf. on Robotics and Automation*, pages 1282–1287, Pasadena, May, 19-23, 2008.
- [dressler2010] Dressler I., Brogardh T., and Robertson A. A kinematic error model for a parallel Gantry-Tau manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 3709–3714, Anchorage, May, 3-8, 2010.
- [drosdol85] Drosdol J. and Panik F. The Daimler-Benz driving simulator. A tool for vehicle development, February 25- March 1, 1985. SAE Technical Paper Series. **Keywords:** applications, simulator, hardware.
- [du-h2015] Du H. and others . Advancing computer-assisted orthopaedic surgery using a hexapod device for closed diaphyseal fracture reduction. *Int J Med Robotics Comput Assist Surg*, 11:348–359, 2015.
- [du-j2012] Du J., Ding W., and Bao H. Cable vibration analysis for large workspace cable-driven parallel manipulators. In *1st Int. Conf. on cable-driven parallel robots (CableCon)*, Stuttgart, September, 3-4, 2012.
- [du-j2014] Du J., Bao H., and Cui C. Stiffness and dexterous performances optimization of large workspace cable-driven parallel manipulators. *Advanced Robotics*, 28:187–196, 2014.
- [du-x2019] Du X. and Chen Y. The design and analysis of UPR-UPU-UR vector propulsion mechanism. In *International Conference on Robotics and Biomimetics (ROBIO)*, 2019.
- [du-x2021] Du X. and others . Design and optimization of solar tracker with U-PRU-PUS parallel mechanism. *Mechanism and Machine Theory*, 155, 2021.
- [du-z2014] Du Z., Shi R., and Dong W. A piezo actuated high precision flexible parallel pointing mechanism: conceptual design, development and experiments. *IEEE Trans. on Robotics*, 30(1):131–138, February 2014.
- [du2007] Du Z-C., Yu Y-Q., and Yang J-X. Dynamic model of a flexible 5R parallel robot. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [duan-q2010] Duan Q. and others . Modeling of variable length cable driven parallel robot. In *IEEE/ASME International Conference on Mechatronic and Embedded Systems and Applications*, 2010.
- [duan2011] Duan X. and others . Motion prediction and supervisory control of the macro-micro parallel manipulator system. *Robotica*, 29(7):1005–1015, December 2011.
- [duan2011-1] Duan X. and others . Real-time motion planning for the macro-micro parallel manipulator system. In *IEEE Int. Conf. on Robotics and Automation*, Shanghai, May, 9-13, 2011.

- [duan2016] Duan X. and others . On the mechatronic servo bandwidth of a Stewart platform for active vibration isolating in a super antenna. *Robotics and Computer-Integrated Manufacturing*, 40:66–77, August 2016.
- [duanqj2014] Duan Q.J. and Duan X. Workspace calculation and quantification calculations of cable-driven parallel robots. *Advances in Mechanical Engineering*, 2014, 2014.
- [dubowsky94] Dubowsky S. and others . The design and implementation of a laboratory test bed for space robotics: the VES mod. II. In *ASME Design Automation Conf.*, pages 99–108, Minneapolis, September, 11-14, 1994.
- [dubowsky94-1] Dubowsky S. and others . A laboratory test bed for space robotics: the VES mod. II. In *IROS*, pages 1562–1569, München, September, 12-16, 1994.
- [duchaine2007] Duchaine S., V. and Bouchard and Gosselin C. Computationally efficient predictive robot control. *IEEE/ASME Trans. on Mechatronics*, 12(5):570–578, 2007.
- [duffy96] Duffy J. *Statics and Kinematics with Applications to Robotics*. Cambridge University Press, New-York, 1996. **Keywords:** planar robot,statics,kinematics,stiffness.
- [duffy98] Duffy J., Crane C., Knight B., and Rooney J. An investigation of a special motion of an octahedron manipulator using screw theory. In *ARK*, pages 307–316, Strobl, June 29- July 4, 1998.
- [dunlop94] Dunlop G.R., Jones T.P., and Lintott A.B. Three DOF parallel robots for linear and spherical positioning. In *ISRAM*, pages 655–660, Hawaiï, August, 15-17, 1994.
- [dunlop96] Dunlop G.R. and Jones T.P. Gravity counter balancing of a parallel robot for antenna aiming. In *6th ISRAM*, pages 153–158, Montpellier, May, 28-30, 1996.
- [dunlop97] Dunlop G.R. and Jones T.P. Position analysis of a 3-dof parallel manipulator. *Mechanism and Machine Theory*, 32(8):903–920, November 1997.
- [dunlop99] Dunlop G.R. and Jones T.P. Position analysis of a two DOF parallel mechanism- the Canterbury tracker. *Mechanism and Machine Theory*, 34(4):599–614, May 1999.
- [dunlop2002] Dunlop R. and Garcia A.C. A Nitinol wire actuated Stewart platform. In *Australasian Conf. on Robotics and Automation*, pages 122–127, Auckland, November, 27-29, 2002.
- [dunlop2006] Dunlop R. and others . A singularity free parallel robotic mechanism for aiming antennas and cameras. In *RoManSy*, Warsaw, 2006.
- [duplessis2002] Du Plessis L.J. and Snyman J.A. Design and optimum operation of a reconfigurable planar Gough-Stewart machining platform. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 729–749, Chemnitz, April, 23-25, 2002.
- [duplessis2006] Du Plessis L.J. and Snyman J.A. Determination of optimum geometrie for a planar reconfigurable machining platform using the LFOPC optimization algorithm. *Mechanism and Machine Theory*, 41(3):307–333, March 2006.
- [duplessis2006-1] Du Plessis L.J. and Snyman J.A. An optimaly reconfigurable planar Gough-Stewart machining platform. *Mechanism and Machine Theory*, 41(3):334–357, March 2006.
- [durrbaum2002] A. Dürrbaum and others . Comparison of automatic and symbolic differentiation in mathematical modeling and computer simulation. *Multibody System Dynamics*, 7(4):331–355, May 2002.
- [durschmied2002] Dürschmied F. and Hestermann J.O. Achieving technical and economic potential with xxx components. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 263–275, Chemnitz, April, 23-25, 2002.
- [dutre97] Dutré S., Bruyninckx H., and De Schutter J. The analytical jacobian and its derivative for a parallel manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 2961–2966, Albuquerque, April, 21-28, 1997.
- [dutta2019] Dutta A. T. and others . Sensorless full body active compliance in a 6 DOF parallel manipulator. *Robotics and Computer-Integrated Manufacturing*, 59:278–290, 2019.

- [dwolastzki89] Dwolastzki B. and Thornton G.S. The GEC Tetrabot-A serial-parallel topology robot: control design aspects. In *IEE Int. Workshop on Robot Control*, pages 426–431, Oxford, April, 11-12, 1989.
- [earl83] Earl C.F. and Rooney J. Some kinematics structures for robot manipulator designs. *J. of Mechanisms, Transmissions and Automation in Design*, 105(1):15–22, March 1983.
- [eastwood2009] Eastwood S. and Webbb P. Compensation of thermal deformation of a hybrid parallel kinematic machine. *Robotics and Computer-Integrated Manufacturing*, 25(1):81–90, February 2009.
- [eastwood2009-1] Eastwood S. and Webbb P. Error significance analysis and compensation for hpkms. *Industrial Robot*, 36(1):27–35, 2009.
- [eastwood2010] Eastwood S. and Webbb P. A gravitational deflection compensation strategy for HPKMs. *Robotics and Computer-Integrated Manufacturing*, 26(6):694–702, December 2010.
- [eberharther2007] Eberharther J.K. Synthesis of spatial parallel mechanisms with initial conditions using line geometry. *Mechanism and Machine Theory*, 42(10):1289,1297, October 2007.
- [ebert96] Ebert-Uphoff I. and Chirikjian G.S. Inverse kinematics of discretely actuated hyper-redundant manipulators using workspace densities. In *IEEE Int. Conf. on Robotics and Automation*, pages 139–145, Minneapolis, April, 24-26, 1996.
- [ebert98] Ebert-Uphoff I. and Gosselin C.M. Static balancing of a class of spatial parallel platform mechanisms. In *ASME Design Engineering Technical Conferences*, Atlanta, September, 13-16, 1998.
- [ebert98-1] Ebert-Uphoff I. and Gosselin C.M. Kinematic study of a new type of spatial parallel platform mechanism. In *ASME Design Engineering Technical Conferences*, Atlanta, September, 13-16, 1998.
- [ebert2000] Ebert-Uphoff I., Gosselin C.M., and Laliberté T. Static balancing of spatial parallel platform-revisited. *ASME J. of Mechanical Design*, 122(1):43–51, March 2000.
- [ebert2002] Ebert-Uphoff I. and Johnson K. Practical considerations for the static balancing of mechanisms of parallel architecture. *Proc. Instn Mech Engrs, Part K: J. Multi-body dynamics*, 216(1):73–85, March 2002.
- [ebert2002-1] Ebert-Uphoff I., Lee J-K., and Lipkin H. Characteristic tetrahedron of wrench singularities for parallel manipulators with three legs. *Proc. Instn Mech Engrs, Part C: J. Mechanical Engineering Science*, 216(1):81–93, January 2002.
- [ebert2004] Ebert-Uphoff I. and Voglewede P.A. On the connections between cable-driven robots, parallel manipulators and grasping. In *IEEE Int. Conf. on Robotics and Automation*, pages 4521–4526, New Orleans, April, 28-30, 2004.
- [ebrahimi2007] Ebrahimi I., Carretero J.A., and Boudreau R. Actuation scheme for a 6-dof kinematically redundant planar parallel manipulator. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [ebrahimi2007-1] Ebrahimi I., Carretero J.A., and Boudreau R. 3 – *P**R**R**R* redundant planar parallel manipulator: inverse displacement, workspace and singularity analyses. *Mechanism and Machine Theory*, 42(8):1007–1016, August 2007.
- [ebrahimi2008] Ebrahimi I., Carretero J.A., and Boudreau R. A family of kinematically redundant planar parallel manipulators. *ASME J. of Mechanical Design*, 130(6):062306–1/062306–8, June 2008.
- [ebrahimi2008-1] Ebrahimi I., Carretero J.A., and Boudreau R. Kinematic analysis and path planning of a new kinematically redundant planar parallel manipulator. *Robotica*, 26(3):405–413, May 2008.
- [ecorchard2005] Ecorchard G. and Maurine P. Self-calibration of Delta parallel robots with elastic deformation compensation. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Edmonton, August, 2-6, 2005.
- [ecorchard2006] Ecorchard G., Neugebauer R., and Maurine P. Self-calibration of a redundantly actuated parallel kinematic machine-tool. In *5th Chemnitzer Parallelkinematik Seminar*, pages 477–496, Chemnitz, April, 25-26, 2006.



- [ecorchard2010] Ecorchard G., Neugebauer R., and Maurine P. Elasto-geometrical modeling and calibration of redundantly actuated PKMs. *Mechanism and Machine Theory*, 45(5):795–810, May 2010.
- [eden2016] Eden J. and others . Available acceleration set for the study of motion capabilities for cable-driven robots. *Mechanism and Machine Theory*, 105:320–336, 2016.
- [eden2017] Eden J. and others . CASPR-ROS: a generalized cable-robot software for ROS. In *3rd Int. Conf. on cable-driven parallel robots (CableCon)*, Québec, 2017.
- [eden2019] Eden J. and others . Unilateral manipulability quality indices: generalized manipulability measures for unilaterally actuated robots. *ASME J. of Mechanical Design*, 141(9), 2019.
- [eftekhari2015] Eftekhari M., Eftekhari M., and Karimpour H. Neuro-fuzzy adaptive control of a revolute Stewart platform carrying payloads of unknown inertia. *Robotica*, 36:588–606, 2018.
- [eftekhari2018] Eftekhari M. and Karimpour H. Emulation of pilot control behavior across a stewart platform simulator. *Robotica*, 36:697–714, 2018.
- [egner96] Egner S. Semi-numerical solution to 6/6-Stewart-platform kinematics based on symmetry. *Applicable Algebra in Engineering, Communication and Computing*, 7(6):449–468, 1996.
- [ejima2013] Ejima T. and others . Development of microhand utilizing singularity of parallel mechanism. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Tokyo, November, 3-7, 2013.
- [elghazali2014] El-Ghazali G., Gouttefarde M., and Creuze V. Adaptive terminal sliding mode control of redundantly actuated cable-driven parallel manipulator:CoGiRo. In *2nd Int. Conf. on cable-driven parallel robots (CableCon)*, pages 3–16, Duisburg, August, 24-27, 2014.
- [elghazali2016] El-Ghazali G., Gouttefarde M., Creuze V., and Pierrot F. Maximum wrench feasible payload in cable-driven parallel robots equipped with a serial robot. In *IEEE Int. Conf. on Advanced Intelligent Mechatronics*, Banff, July, 12-15, 2016.
- [elhraiech2020] El Hraiech S. and others . Genetic algorithm coupled with the Krawczyk method for multi-objective design parameters optimization of the 3-UPU manipulator. *Robotica*, 38:1138–1154, 2020.
- [eljjouaoui2022] El Jjouaoui H. and others . Modeling of a remote center of motion spherical parallel tensegrity mechanism for percutaneous interventions. In *ARK*, Bilbao, June, 26-30, 2022.
- [elkadi2008] Elkadi A. and others . *Parallel manipulators, Towards new applications*, chapter Cartesian parallel manipulator. Modeling, control and simulation, pages 270–294. INTECH, April 2008. **Keywords:** 3 dof robot,dynamics,control.
- [elkhasawneh98] El-Khasawneh B. and Ferreira P.M. The Tetrahedral tripod. In *First European-American Forum on Parallel Kinematic Machines*, pages 419–430, Milan, August 31- September 1, 1998.
- [elkhasawneh99] El-Khasawneh B. and Ferreira P.M. Computation of stiffness and stiffness bounds for parallel manipulators. *Int. J. of Machine Tools & Manufacture*, 39(2):321–342, February 1999.
- [ellwood2010] Ellwood R.J. and others . Calibration and validation of a rigid body kinematic model of flexure hinges. In *ARK*, pages 3–10, Piran, June 28- July 1, 2010.
- [ellwood2010-1] Ellwood R.J., Schütz D., and Raatz A. Incorporating flexure hinges in the kinematic model of a planar 3-*PRR* parallel robot. In *3rd European Conf. on Mechanism Science (Eucomes)*, pages 683–690, Cluj-Napoca, September, 14-17, 2010.
- [emmens2014] Emmens A.R., S.A.J. Spanjer, and Herder J.L. Modeling and control of a large-span redundant surface constrained cable robot with a vision sensor on the platform. In *2nd Int. Conf. on cable-driven parallel robots (CableCon)*, pages 249–262, Duisburg, August, 24-27, 2014.
- [endo2010] Endo G. and others . A passive weight compensation mechanism with a non-circular pulley and a spring. In *IEEE Int. Conf. on Robotics and Automation*, pages 3843–3848, Anchorage, May, 3-8, 2010.
- [enferadi2009] Enferadi J. and Tootoonchi A.A. A novel spherical parallel manipulator: forward position problem, singularity analysis, and isotropy design. *Robotica*, 27(5):663–676, 2009.

- [enferadi2010] Enferadi J. and Tootoonchi A.A. A novel approach for forward position analysis of a double-triangle spherical parallel manipulator. *European Journal of Mechanics A/Solids*, 29(3):348–355, May - June , 2010.
- [enferadi2011] Enferadi J. and Tootoonchi A.A. Accuracy and stiffness analysis of a 3-RRP spherical parallel manipulator. *Robotica*, 29(2):193–200, March 2011.
- [enferadi2015] Enferadi J. and Shahi A. A closed-form solution for the position analysis of a novel fully spherical parallel manipulator. *Robotica*, 33(10):2114–2136, December 2015.
- [enferadi2016] Enferadi J. and Shahi A. On the position analysis of a new spherical parallel robot with orientation applications. *Robotics and Computer-Integrated Manufacturing*, 37:151–161, 2016.
- [erlbacher97] Erlbacher E.A. Automated scarfing and surface finishing apparatus for complex composite structures, 1997. Contract report SBIR N 00421-97-C-1207. **Keywords:** applications.
- [erskine2019] Erskine J., Chriette A., and Caro S. Control and configuration planning of an aerial cable towed system. In *IEEE Int. Conf. on Robotics and Automation*, Montréal, May, 20-24, 2019.
- [erastova2022] Erastova K. Effective workspaces of parallel robots. *Robotica*, 40:4308–4325, 2022.
- [erwin2017] Erwin A. and others . Kinesthetic feedback during 2dof wrist movements via a novel MR-compatible robot. *IEEE Trans. on Neural Systems and Rehabilitation Engineering*, 25(9):1489–1499, 2017.
- [escorcia2020] Escorcia-Hernandez J.M. and others . A new solution for machining with RA-PKMs: modelling, control and experiments. *Mechanism and Machine Theory*, 150, 2020.
- [eskandary2018] Eskandary P.K. and Angeles J. The dynamics of a parallel Schönflies-motion generator. *Mechanism and Machine Theory*, 119:119–129, 2018.
- [essomba2016] Essomba T. and others . Optimal synthesis of a spherical parallel mechanism for medical application. *Robotica*, 34:671–686, 2016.
- [esteban2006] Esteban I. and Heisel U. Analysis of the component requirements and the feasible mechanical properties of hexapod machine tools. In *5th Chemnitzer Parallelkinematik Seminar*, pages 97–113, Chemnitz, April, 25-26, 2006.
- [eugster2018] Eugster M. and others . A parallel robotic mechanism for the stabilization and guidance of an endoscope tip in laser osteotomy. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Madrid, October, 1-5, 2018.
- [eugster2021] Eugster M., Merlet J-P., Gerig N., Cattin P. C., and Rauter G. Miniature parallel robot with submillimeter positioning accuracy for minimally invasive laser osteotomy. *Robotica*, pages 1–28, 2021.
- [everett89] Everett L.J. Forward calibration of closed-loop jointed manipulators. *Int. J. of Robotics Research*, 8(4):85–91, August 1989.
- [fajardo95] Fajardo P. and Rey-Bakaikoa V. Control of six degree-of-freedom manipulators for synchrotron radiation applications. *Review of Scientific Instruments*, 66(2):1758–1761, February 1995.
- [fan-s2019] Fan S. and Fan S. Approximate stiffness modelling and stiffness defect identification for a heavy-load parallel manipulator. *Robotica*, 37:1120–1142, 2019.
- [fan2013] Fan C., Liu H., and Zhang Y. Type synthesis of 2T2R, 1T2R and 2R parallel manipulators. *Mechanism and Machine Theory*, 61:184–190, April 2013.
- [fang97] Fang Y. and Huang Z. Kinematics of a three-degree-of-freedom in-parallel actuated manipulator mechanism. *Mechanism and Machine Theory*, 32(7):789–796, October 1997.
- [fang2004] Fang Y. and Tsai L-W. Structure synthesis of a class of 3-DOF rotational parallel manipulators. *IEEE Trans. on Robotics and Automation*, 20(1):117–121, February 2004.
- [fang2004-1] Fang Y. and Tsai L-W. Analytical identification of limb structure for translational parallel manipulator. *J. of Robotic Systems*, 21(5):209–218, 2004.

- [fangh2005] Fang H. and Merlet J-P. Multi-criteria optimal design of parallel manipulators based on interval analysis. *Mechanism and Machine Theory*, 40(2):151–171, February 2005.
- [fangh2019] Fang H., Tang T., and Zhang J. Kinematic analysis and comparison of a 2R1T redundantly actuated parallel manipulator and its non-redundantly actuated forms. *Mechanism and Machine Theory*, 142, 2019.
- [fangh2022] Fang H. and others . A novel hybrid machine tool integrating a symmetrical redundantly actuated parallel mechanism: Design, kinematics, prototype and experiment. *Mechanism and Machine Theory*, 176, 2022.
- [fanghella2006] Fanghella P., Galletti C., and Giannetti E. Parallel robots that change their group of motion. In *ARK*, pages 49–56, Ljubljana, June, 26-29, 2006.
- [farajtabar2017] Farajtabar M., Daniali H.M., and Varedi S.M. Pick and place trajectory planning of planar 3-RRR parallel manipulator in the presence of joint clearance. *Robotica*, 35:241–253, 2017.
- [fard2014] Fard B.M., Padargani T., and Saki S. Optimum determination of motor mount locations for a cable-driven rehabilitation robot. In *Second RSI/ISM International Conference on Robotics and Mechatronics (ICRoM)*, pages 864–869, 2014.
- [farhat2007] Farhat N., Diaz M-A., and Mata V. Dynamic parameter identification of parallel robots considering physical feasibility and nonlinear friction models. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [farhat2008] Farhat N. and others . Identification of dynamic parameters of a 3-dof RPS parallel manipulator. *Mechanism and Machine Theory*, 43(1):1–17, January 2008.
- [farhat2010] Farhat N. and others . Dynamic simulation of a parallel robot: Coulomb friction and stick-slip in robot joints. *Robotica*, 28(1):35–45, January 2010.
- [faschingbauer2015] Faschingbauer M. and others . Accuracy of a hexapod parallel robot kinematics based external fixator. *Int J Med Robotics Comput Assist Surg*, 11:424–435, 2015.
- [fasse99] Fasse E.D. and Gosselin C.M. Spatio-geometric impedance control of Gough-Stewart platforms. *IEEE Trans. on Robotics and Automation*, 15(2):281–288, April 1999.
- [fassi2002] Fassi I. and Legnani G. Automatic identification of a minimum, complete and parametrically continuous model for the geometrical calibration of parallel robots. In *Workshop on Fundamental Issues and Future Research Directions for Parallel Mechanisms and Manipulators*, pages 204–214, Québec, October, 3-4, 2002.
- [fassi2005] Fassi I., Legnani G., and Tosi D. Geometrical condition for the design of partial or full isotropic hexapods. *J. of Robotic Systems*, 22(10):507–518, 2005.
- [fatehi2011] Fatehi M.H. and others . Kinematic analysis of 3-PRS parallel robot for using in satellites tracking system. In *2nd International Conference on Control, Instrumentation and Automation (ICCIA)*, Shiraz, 2011.
- [fattah2000] Fattah A. and Kasei G. Kinematics and dynamics of a parallel manipulator with a new architecture. *Robotica*, 18(5):535–543, September 2000.
- [fattah2001] Fattah A. and Jazi S.H. Optimal design of parallel manipulators. In *ICAR*, pages 645–650, Budapest, August, 22-25, 2001.
- [fattah2002] Fattah A. and Hasan Ghasemi A.M. Isotropic design of spatial parallel manipulators. *Int. J. of Robotics Research*, 21(9):811–824, September 2002.
- [fattah2002-1] Fattah A. and Agrawal S.K. Workspace and design analysis of cable-suspended planar parallel robots. In *ASME Design Engineering Technical Conference*, Montréal, September 29- October 2, 2002.
- [fattah2005] Fattah A. and Agrawal S.K. On the design of cable-suspended planar parallel robots. *ASME J. of Mechanical Design*, 127(5):1021–1028, September 2005.
- [faugere95] Faugère J.C. and Lazard D. The combinatorial classes of parallel manipulators. *Mechanism and Machine Theory*, 30(6):765–776, August 1995.

- [faugere2006] Faugère J.C., Merlet J.-P., and Rouillier F. On solving the direct kinematics problem for parallel robots. Research Report 5923, INRIA, June 2006.
- [faulring2004] Faulring E.L., Colgate J.E., and Peshkin M.A. A high performance 6-dof haptic Cobot. In *IEEE Int. Conf. on Robotics and Automation*, pages 1980–1985, New Orleans, April, 28-30, 2004.
- [faulring2006] Faulring E.L., Colgate J.E., and Peshkin M.A. The Cobotic hand controller: design, control and performance of a novel haptic display. *Int. J. of Robotics Research*, 25(11):1099–1119, November 2006.
- [fazenda-carrico2006] Fazenda Carrico N.R. *Calibration of high-precision flexure parallel robots*. Ph.D. Thesis, EPFL, Lausanne, 2006. **Keywords:** calibration, flexible robot.
- [fazenda2006] Fazenda N. and others . Calibration of the 6 dof high-precision flexure parallel robot Sigma 6. In *5th Chemnitzer Parallelkinematik Seminar*, pages 379–398, Chemnitz, April, 25-26, 2006.
- [fei2019] Fei D. and others . Dynamic modeling and simulation of underwater parallel robot. In *4th Int. Conf. on Advanced Robotics and Mechatronics (ICARM)*, 2019.
- [feng-j2012] Feng J., Gao F., and Zhao X. Calibration of a six-dof parallel manipulator for chromosome dissection. *Proc. Instn Mech Engrs, Part C: J. Mechanical Engineering Science*, 226(4):1084–1096, April 2012.
- [feng96] Feng G. and others . A physical model of the solution space and the atlas of the reachable workspace for 2-dof parallel planar manipulators. *Mechanism and Machine Theory*, 31(2):173–184, February 1996.
- [feng96-1] Feng G. and others . Physical model of the solution space of 3-dof parallel planar manipulators. *Mechanism and Machine Theory*, 31(2):161–171, February 1996.
- [fengchun2019] Fengchun L. and others . A calibration method for overconstrained spatial translational parallel manipulators. *Robotics and Computer-Integrated Manufacturing*, 57:241–254, 2019.
- [fenyi93] Fenyi S.E. Die Stewart platform als kraft-und momentensensor, das modifizierte Föppl fachwerk als kraft-sensor. Research Report 52/01/02P10A, Kernforschungszentrum Karlsruhe, March 1993.
- [fenyi95] Fenyi S.E. Stewart platform based 6-axis force and torque transducers. In J.-P. Merlet B. Ravani, editor, *Computational Kinematics*, pages 221–230. Kluwer, 1995. **Keywords:** applications, force sensor.
- [ferlay2008] Ferlay F. and Gosselin F. A new cable-actuated haptic interface design. In *EuroHaptic*, 2008.
- [ferrand98] Ferrand A. and Renaud M. Analyse des points morts d’une plate-forme dite de Stewart. *Mechanism and Machine Theory*, 33(4):409–424, May 1998.
- [ferraresi95] Ferraresi C., Montacchini G., and Sorli M. Workspace and dexterity evaluation of 6 d.o.f. spatial mechanisms. In *9th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 57–61, Milan, August 30- September 2, 1995.
- [ferraresi95-1] Ferraresi C., Pastorelli S., Sorli M., and Zhmud N. Static and dynamic behavior of a high stiffness Stewart platform-based force/torque sensor. *J. of Robotic Systems*, 12(10):883–893, 1995.
- [ferraresi2004] Ferraresi C. and others . A new 6-dof parallel robotic structure actuated by wires: The WiRo-6.3. *J. of Robotic Systems*, 21(11):581–595, November 2004.
- [ferraresi2007] Ferraresi C., Paoloni M., and F. Pescarmona. A new methodology for the determination of the workspace of six-dof redundant parallel structures actuated by nine wires. *Robotica*, 25(1):113–120, January 2007.
- [ferraresi2010] Ferraresi C. and Pescarmona F. Cable driven devices for telemanipulation. In *Remote and Telerobotics*, chapter 10. IntechOpen, 2010. **Keywords:** wire robot, kinematics, workspace.
- [ferraris2006] Ferraris E. and others . Development of a mini PKM. In *5th Chemnitzer Parallelkinematik Seminar*, pages 695–710, Chemnitz, April, 25-26, 2006.
- [ferravante2019] Ferravante V. and others . Dynamic analysis of high precision construction cable-driven parallel robots. *Mechanism and Machine Theory*, 135:54–64, 2019.

- [fesharakifard2008-phd] Fesharakifard R. *Conception et réalisation d'une interface à retour d'effort pour les environnements virtuels à échelle humaine*. Ph.D. Thesis, Ecole des Mines, Paris, January, 23, 2008. **Keywords:** wire robot.
- [fettig2000] Fettig H., Hubbard T., and Kujath M. Simulation and modeling of compliant micro-mechanisms. In *IX Int. Microscale System Symp.*, pages 12–18, Floride, June, 8, 2000.
- [fichter80] Fichter E.F. and McDowell E.D. A novel design for a robot arm. In *Proc. Int. Computer Technical Conf.*, pages 250–255, San Francisco, 1980.
- [fichter84] Fichter E.F. Kinematics of a parallel connection manipulator. In *ASME Design Engineering Technology Conference*, pages 1–8, Cambridge (MA), October, 7-12, 1984.
- [fichter86] Fichter E.F. A Stewart platform based manipulator: general theory and practical construction. *Int. J. of Robotics Research*, 5(2):157–181, Summer 1986.
- [fijani2012] Fijani A. and Fried G. Novel algorithm for computation of inverse kinematics and inverse dynamics of Gough-Stewart platform. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 1573–1580, Vilamoura, October, 7-12, 2012.
- [filipovic2012] Filipovic M. The importance of modelling an aerial robotic camera. *Scientific Technical Review*, 62(1), 2012.
- [filipovic2012-1] Filipovic M., Djuric A., and Kevac L. Contribution to the modeling of cable-suspended parallel robot hanged on the four points. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Vilamoura, October, 7-12, 2012.
- [filipovic2014] Filipovic M. and Djuria A. Mathematical model of the aerial robotic camera base on its geometric relationship. *FME Trans.*, 42, 2014.
- [filipovic2014-1] Filipovic M. and others . The elastic f-type cable-suspended parallel robot in the service of parents. In *Medical and Service Robotics International Workshop*, Lausanne, 2014.
- [filipovic2016] Filipovic M., Djuria A., and Kevac L.J. The rigid S-type cable-suspended parallel robot design, modeling and analysis. *Robotica*, 34(9):1948–1960, September 2016.
- [finistauri2008] Finistauri A.D., Xi F., and Petz B. *Parallel manipulators, Towards new applications*, chapter Architecture design and optimization of an on-the-fly reconfigurable parallel robot, pages 379–404. ITECH, April 2008. **Keywords:** mechanical architecture, modular robot.
- [finistauri2013] Finistauri A.D. and Xi F. Reconfiguration analysis of a fully reconfigurable parallel robot. *J. of Mechanisms and Robotics*, 5(4), November 2013.
- [fink2009] Fink J. and others . Planning and control for cooperative manipulation and transportation with aerial robots. In *14th ISRR*, Lucerne, August 31- September 3, 2009.
- [fioretti94] Fioretti A. Implementation-oriented kinematics analysis of a 6 dof parallel robotic platform. In *4th IFAC Symp. on Robot Control, Syroco*, pages 43–50, Capri, September, 19-21, 1994.
- [fiorio2017] Fiorio L. and others . A parallel kinematic mechanism for the torso of a humanoid robot: design, construction and validation. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Vancouver, September, 24-28, 2017.
- [firmani2004] Firmani F. and Podhorodeski R.P. Force unconstrained poses for a redundantly-actuated planar parallel manipulator. *Mechanism and Machine Theory*, 39(5):459–476, May 2004.
- [firmani2007] Firmani F. and Podorodeski R-P. Singularity loci of revolute-jointed planar parallel manipulators with redundant actuated branches. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [firmani2008] Firmani F. and others . Wrench capabilities of planar parallel manipulators. Part I: wrench polytopes and performance indices. *Robotica*, 26(6):791–802, November 2008.

- [firmani2008-1] Firmani F. and others . Wrench capabilities of planar parallel manipulators. Part II: redundancy and wrench workspace analysis. *Robotica*, 26(6):803–815, November 2008.
- [firmani2008-2] Firmani F. and others . *Parallel manipulators, Towards new applications*, chapter Wrench capabilities of planar parallel manipulators and their effects under redundancy, pages 109–120. ITECH, April 2008.  
**Keywords:** planar robot, redundant robot, statics, performance analysis.
- [firmani2009] Firmani F. and Podhorodeski R.P. Singularity analysis of planar parallel manipulators based on forward kinematic solutions. *Mechanism and Machine Theory*, 44(8):1386–1399, 2009.
- [firoozhabadi2015] Firoozhabadi A.E., Ebrahimi S., and Amirian G. Dynamic characteristics of a 3-RPR parallel manipulator with flexible intermediate links. *Robotica*, 33(9):1909–1925, November 2015.
- [firoozhabadi2017] Firoozhabadi A.E., Ebrahimi S., and Font-Llagunes J.M. A comparative study of elastic motions in trajectory tracking of flexible RPR planar manipulators moving with high speed. *Robotica*, 35(7):1523–1540, 2017.
- [fleischer2005] Fleischer J., Schmidt-Ewig J.P., and WEeule H. Innovative machine kinematics for combined handling and machining of three-dimensional curved lightweight extrusion structures. *Annals of the CIRP*, 54(1):317–320, 2005.
- [fleischer2006] Fleischer J. and Schmidt-Ewig J.P. Combination of a parallel and a serial kinematic for the integrated handling and machining of lightweight extrusion structure. In *5th Chemnitz Parallelkinematik Seminar*, pages 289–306, Chemnitz, April, 25–26, 2006.
- [flores2007] Flores F.G., Kecskeméthy A., and Pöttker A. Workspace analysis and maximal force calculation of a face-shovel excavator using kinematical transformers. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18–21, 2007.
- [fluckiger98] Flückiger L. A robot interface using virtual reality and automatic kinematics generator. In *27th Int. Symposium on Robotics*, pages 123–126, Birmingham, April 24– May 1, 1998.
- [fomin2018] Fomin A. and Glazunov V. A novel rotary positioner with single drive: structural anlysis and kinematic design. In *ARK*, Bologna, July, 1–5, 2018.
- [fontana2006] Fontana M. and others . Kinematics of a new 2-dof wrist with high angulation capability. In *IEEE Int. Conf. on Robotics and Automation*, pages 1524–1529, Orlando, May, 16–18, 2006.
- [fontes2016] Fontes J.V. and Da Silva M.M. On the dynamic performance of parallel kinematic manipulators with actuation and kinematic redundancies. *Mechanism and Machine Theory*, 103:148–166, 2016.
- [fontes2022] Fontes J.V. and others . Model-based joint and task space control strategies for a kinematically redundant parallel manipulator. *Robotica*, 40:1570–1586, 2022.
- [fortin-cote2014] Fortin-Côté A., Cardou P., and Gosselin C. An admittance control scheme for haptic interfaces based on cable-driven parallel mechanisms. In *IEEE Int. Conf. on Robotics and Automation*, pages 819–825, Hong-Kong, 7 May 31– June , 2014.
- [fortin-cote2016] Fortin-Côté A., Cardou P., and Campeau-Lecours A. Improving cable driven parallel robot accuracy through angular position sensors. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 4350–4355, Daejeon, October, 9–14, 2016.
- [fortin-cote2016-1] Fortin-Côté A., Cardou P., and Gosselin C. A tension distribution algorithm for cable-driven parallel robots operating beyond their wrench-feasible workspace. In *6th International Conference on Control, Automation and Systems (ICCAS)*, Gyeongju, October, 16–19, 2016.
- [fortin-cote2017] Fortin-Côté A. and others . On the design of a novel cable-driven parallel robot capable of large rotation about one axis. In *3rd Int. Conf. on cable-driven parallel robots (CableCon)*, Québec, 2017.
- [foshage96] Foshage J. and others . Hybrid active/passive actuation for spacecraft vibration isolation and suppression. *Proc. of the SPIE*, 2865:104–121, 1996.
- [foucault2002] Foucault S. and Gosselin C.M. On the development of a planar 3-dof reactionless parallel mechanism. In *ASME Design Engineering Technical Conference*, Montréal, September 29– October 2, 2002.

- [fraczek2001] Fraczek J., Busko Z., and Morecki A. Laser calibration and kinematical analysis and synthesis of robots. Selected problems. In *2nd Int. Workshop on Robot Motion and Control (RoMoCo)*, pages 19–25, Bukowy Dworek, October, 18-20, 2001.
- [franci2008] Franci R., Parenti-Castelli V., and Sanciso N. A three-step procedure for the modelling of human diarthrodial joints. In *RAAD*, Technical University of Marche Region, 2008.
- [franke2002] Franke H.J., Otremba R., and Janicke T. Methodical development of optimized passive joints. In *1st Int. Colloquium, Collaborative Research Centre 562*, pages 119–130, Braunschweig, May, 29-30, 2002.
- [franke2005] Franke H.J. and others . Knowledge based development environment. In *2nd Int. Colloquium, Collaborative Research Centre 562*, pages 221–236, Braunschweig, May, 10-11, 2005.
- [frayssinet2006] Frayssinet H. and others . Improving the accuracy of the 5-axis parallel kinematic machine-tool HITASTT (Stiffness Tracking Technology). In *5th Chemnitzer Parallelkinematik Seminar*, pages 585–601, Chemnitz, April, 25-26, 2006.
- [french2004] French C.W. and others . Multi-axial subassemblage testing (Mast) system: description and capabilities. In *13th World Conf. on Earthquake Engineering*, page No. 2146, Vancouver, August, 1-6, 2004.
- [fried96] Fried G. and others . A 3-D sensor for parallel robot calibration. A parameter perturbation analysis. In *ARK*, pages 451–460, Portoroz-Bernadin, June, 22-26, 1996.
- [frigola2008] Frigola R. and others . A wrench-sensitive touch pad based on a parallel structure. In *IEEE Int. Conf. on Robotics and Automation*, pages 3449–3454, Pasadena, May, 19-23, 2008.
- [frindt98] Frindt F., Kerle H., and Plitea N. PENTA- Vorstellung eines parallelen maschinenkonzepts mit fünf bewegungsfreiheiten. In *New machine concepts for handling and manufacturing devices on the basis of parallel structures*, pages 15–34, Braunschweig, November, 10-11, 1998.
- [frisoli2000] Frisoli A. and others . Synthesis by screw algebra of translating in-parallel actuated mechanisms. In *ARK*, Piran, June, 25-29, 2000.
- [frisoli2007] Frisoli A. and others . A new method for the estimation of position accuracy in parallel manipulators with joint clearances. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [frisoli2008] Frisoli A., Solazzi M., and Bergamasco M. A new method for the estimation of position accuracy in parallel manipulators with joint clearances by screw theory. In *IEEE Int. Conf. on Robotics and Automation*, pages 837–844, Pasadena, May, 19-23, 2008.
- [frisoli2011] Frisoli A. and others . A new screw theory method for the estimation of position accuracy in spatial parallel manipulators with revolute joint clearances. *Mechanism and Machine Theory*, 46:1929–1949, 2011.
- [fu-j-2016] Fu J. and others . Kinematic accuracy research of a novel six-degree-of-freedom parallel robot with three legs. *Mechanism and Machine Theory*, 102:86–102, 2016.
- [fu2007] Fu S., Yao Y., and Wu Y. Comment on ‘a newton-euler formulation for the inverse dynamics of the Stewart platform manipulator’ by s. dasgupta and t.s. mruthyunjaya [mech. mac. theory 33 (1998) 1135-1152]. *Mechanism and Machine Theory*, 42(12):1668–1671, December 2007.
- [fujimoto91] Fujimoto K. and others . Derivation and analysis of equations of motion for a 6 d.o.f. direct drive wrist joint. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 779–784, Osaka, November, 3-5, 1991.
- [fumagali2009] Fumagali A. and Massarati P. Real-time inverse dynamics control of parallel manipulators using general-purpose multibody software. *Multibody System Dynamics*, 22:47–68, 2009.
- [funabashi91] Funabashi H. and others . Development of spatial parallel manipulators with 6 d.o.f. *JSME Int. J., Serie III, Vibration*, 34(3):387–392, 1991.
- [funabashi94] Funabashi H. In parallel actuated mechanisms as a new robotic mechanism. *Advanced Robotics*, 8(6):535–544, December 1994.

- [funabashi95] Funabashi H. and Takeda Y. Determination of singular points and their vicinity in parallel manipulators based on the transmission index. In *9th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 1977–1981, Milan, August 30- September 2, 1995.
- [gabaldo2022] Gabaldo S., Ida E., and Carricato M. Sensitivity of the direct kinematics of underactuated cable-driven parallel robots to redundant sensor-measurement errors. In *ARK*, Bilbao, June, 26-30, 2022.
- [gabardi2018] Gabardi M., Solazzi M., and Frisoli A. An optimization procedure based on kinematics analysis for the design parameters of a 4-UPU parallel manipulator. *Mechanism and Machine Theory*, 133:211–228, 2018.
- [gabellieri2020] Gabellieri C. and others . Compliance control of a cable-suspended aerial manipulator using hierarchical control framework. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Las Vegas, October, 25-29, 2020.
- [gadfly83] Gadfly . - The answer to electronic component assembly. *Assembly Automation*, pages 20–22, February 1983.
- [gagliardini2014] Gagliardini L. and others . Optimal design of cable-driven parallel robots for large industrial structures. In *IEEE Int. Conf. on Robotics and Automation*, pages 5744–5749, Hong-Kong, 7 February 31- June , 2014.
- [gagliardini2014-1] Gagliardini L. and others . A reconfigurable cable-driven parallel robot for sandblasting and painting of large structure. In *2nd Int. Conf. on cable-driven parallel robots (CableCon)*, pages 3–16, Duisburg, August, 24-27, 2014.
- [gagliardini2015] Gagliardini L., Gouttefarde M., and Caro S. Dimensioning of cable-driven parallel robot actuators, gearboxes and winches according to the twist feasible workspace. In *IEEE International Conference on Automation Science and Engineering (CASE)*, Gothenburg, August, 24-28, 2015.
- [gagliardini2015-1] Gagliardini L., Caro S., and Gouttefarde M. Optimal path planning and reconfiguration strategy for reconfigurable cable-driven parallel robots. In *IEEE Int. Conf. on Robotics and Automation*, Seattle, May, 26-30, 2015.
- [gagliardini2016] Gagliardini L., Gouttefarde M., and Caro S. Determination of a dynamic feasible workspace for cable-driven parallel robot. In *ARK*, Grasse, June, 27-30, 2016.
- [gagliardini2016-1] Gagliardini L., Gouttefarde M., and Caro S. Discrete reconfiguration planning of cable-driven parallel robots. *Mechanism and Machine Theory*, 100, 2016.
- [gagliardini2016-phd] Gagliardini L. *Discrete reconfiguration of cable-driven parallel robots*. Ph.D. Thesis, Ecole Centrale de Nantes, Nantes, September, 19, 2016. **Keywords:** wire robot,dynamics,workspace,mechanical architecture,modular robot.
- [gallant-m2018] Gallant M. and Gosselin C. Singularities of a planar 3-R $\underline{P}$ R parallel manipulator with joint clearance. *Robotica*, 36:1098–1109, 2018.
- [gallant2012] Gallant A., Boudreau R., and Gallant M. Geometric determination of the dextrous workspace of n- $\underline{R}$  $\underline{R}$  $\underline{R}$  $\underline{R}$  and n $\underline{R}$  $\underline{R}$  $\underline{P}$  $\underline{R}$  manipulators. *Mechanism and Machine Theory*, 51:159–171, 2012.
- [gallardo2003] Gallardo J. and others . Dynamics of parallel manipulators by means of screw theory. *Mechanism and Machine Theory*, 38(11):1113–1131, November 2003.
- [gallardo2006] Gallardo-Alvarado J., Rico-Martínez J.M., and Alici G. Kinematics and singularity analyses of a 4-dof parallel manipulator using screw theory. *Mechanism and Machine Theory*, 41(9):1048–1061, September 2006.
- [gallardo2007] Gallardo-Alvarado J. and others . Kinematics of a class of parallel manipulators which generates structures with three limbs. *Multibody System Dynamics*, 17:27–46, 2007.
- [gallardo2008] Gallardo-Alvarado J. and others . Analytical solution of the forward position analysis of parallel manipulators that generates 3-RS structures. *Advanced Robotics*, 22(2-3):215–234, 2008.
- [gallardo2008-1] Gallardo-Alvarado J. and others . Kinematics and dynamics of 2-(3-RPS) manipulators by means of screw theory and the principle of virtual work. *Mechanism and Machine Theory*, 43(10):1281–1294, October 2008.



- [gallardo2008-2] Gallardo J. and others . A family of spherical parallel manipulators with two legs. *Mechanism and Machine Theory*, 43(2):201–216, February 2008.
- [gallardo2008-3] Gallardo J. and others . *Parallel manipulators, New Developments*, chapter Acceleration analysis of 3-RPS parallel manipulators by means of screw theory, pages 315–330. ITECH, April 2008. **Keywords:** dynamics, 3 dof robot.
- [gallardo2010] Gallardo J., Orozco-Mendoza H., and Rico-Martinez J.M. A novel five-degrees of freedom decoupled robot. *Robotica*, 28(6):909–917, June 2010.
- [gallardo2010-1] Gallardo-Alvarado J. and others . Kinematics of an asymmetrical three-legged parallel manipulator by means of the screw theory. *Mechanism and Machine Theory*, 45(8):1013–1023, August 2010.
- [gallardo2011] Gallardo J. DeLiA: a new redundant partially decoupled robot. *Advanced Robotics*, 25(9-10):1297–1310, 2011.
- [gallardo2012] Gallardo J. and others . A novel three degrees of freedom partially decoupled robot with linear actuators. *Robotica*, 30(3):467–475, May 2012.
- [gallardo2013] Gallardo J., Garcia-Murillo M.A., and Castillo-Castaneda E. A 2(3-RRPS) parallel manipulator inspired by Gough-Stewart platform. *Robotica*, 31(3):381–388, May 2013.
- [gallardo2014] Gallardo J. A simple method to solve the forward displacement analysis of the general six-legged parallel manipulator. *Robotics and Computer-Integrated Manufacturing*, 30(1):55–61, February 2014.
- [gallardo2019] Gallardo J., Abedinnasab M.H., and Islam Md. N. A simple method to solve the instantaneous kinematics of the 5-RPUR parallel manipulator. *Robotica*, 37:5143–1157, 2019.
- [gallardo2022] Gallardo J., Garcia-Murillo M., and Rodrigues-Castro R. Kinematics of a nine-legged in-parallel manipulator with configurable platform. *Robotica*, 40(12):4455–4474, 2022.
- [gallina2002] Gallina P. and Rosati G. Manipulability of a planar wire driven haptic device. *Mechanism and Machine Theory*, 37(2):215–228, 2002.
- [gallot2007] Gallot G., Ibrahim O., and Khalil W. Dynamic modeling and simulation of a 3-D hybrid structure eel-like robot. In *IEEE Int. Conf. on Robotics and Automation*, pages 1486–1491, Roma, April, 10-14, 2007.
- [gan-d2016] Gan D., Dias J., and Seneviratne L. Unified kinematics and optimal design of a 3rRPS metamorphic parallel mechanism with a reconfigurable revolute joint. *Mechanism and Machine Theory*, 96:239–254, 2016.
- [gan-j2017] Gan J. and others . Full closed-loop controls of micro/nano positioning system with nonlinear hysteresis using micro-vision system. *Sensors and Actuators A*, 257:125–133, 2017.
- [gan2009] Gan D. and others . Forward displacement analysis of the general 6-6 Stewart mechanism using Groebner bases. *Mechanism and Machine Theory*, 44(9):1640–1647, September 2009.
- [gan2010] Gan D.M., Dai J.S., and Caldwell D.G. Constraint-screw system based synthesis of limb arrangement of the 3-PUP parallel mechanism. In *ARK*, pages 485–492, Piran, June 28- July 1, 2010.
- [gan2010-1] Gan D.M., Dai J.S., and Caldwell D.G. Design and kinematics analysis of a 3CCC parallel mechanism. *Robotica*, 28(7):1065–1072, December 2010.
- [gan2010-2] Gan D.M., Dai J.S., and Liao Q. Constraint analysis on mobility change of a novel metamorphic parallel mechanism. *Mechanism and Machine Theory*, 45(12):1864–1976, December 2010.
- [gan2013] Gan D.M. and Dai J.S. Geometry constraint and branch motion evolution of 3-PUP parallel mechanism with bifurcated motion. *Mechanism and Machine Theory*, 61:168–183, March 2013.
- [gan2013-1] Gan D.M. and others . Unified kinematics and singularity analysis of a metamorphic parallel mechanism with bifurcated motion. *J. of Mechanisms and Robotics*, 5(3), August 2013.
- [ganesh2017] Ganesh M. and others . Determination of the closed-form workspace area expression and dimensional optimization of planar parallel manipulators. *Robotica*, 35:2056–2075, 2017.

- [ganesh2021] Ganesh M. and others . Static characteristic analysis of spatial (non-planar) links in planar parallel manipulator. *Robotica*, 39(1):88–105, 2021.
- [ganovski2004] Ganovski I., Fisette P., and Samin J.C. Piecewise overactuation of parallel mechanisms following singular trajectories: modeling, simulation and control. *Multibody System Dynamics*, 12:317–343, 2004.
- [gao-b2011] Gao B. and others . Combined kinematic and static analysis of a cable-driven manipulator with a spring spine. In *IEEE Int. Conf. on Robotics and Automation*, Shanghai, May, 9-13, 2011.
- [gao-g2019] Gao G. and Ye M., M.and Zhang. Synchronous robust sliding mode control of a parallel robot for automobile electro-coating conveying. *IEEE Access*, 2019.
- [gao-l2017] Gao L. and Wu W. Forward kinematics modeling of spatial parallel linkage mechanisms based on constraint equations and the numerical solving method. *Robotica*, 35:293–309, 2017.
- [gao-xz-2005] Gao X-Z. and others . Generalized Stewart-Gough platforms and their direct kinematics. *IEEE Trans. on Robotics*, 21(2):141–151, April 2005.
- [gao-z2010] Gao Z., Zhang D., and Ge Y. Design optimization of a spatial six-degree-of-freedom parallel manipulator based on artificial intelligence approaches. *Robotics and Computer-Integrated Manufacturing*, 26(2):180–189, April 2010.
- [gao-z2010-1] Gao Z. and others . Design, analysis, and stiffness optimization of a three degree of freedom parallel manipulator. *Robotica*, 28(3):349–357, May 2010.
- [gao98] Gao F. and Liu X. Performance evaluation of two-degree-of-freedom planar parallel robots. *Mechanism and Machine Theory*, 33(6):661–668, August 1998.
- [gao2001] Gao F., Liu X-J., and Chen X. The relation ships between the shapes of the workspaces and the link lengths of 3-DOF symmetrical planar parallel manipulators. *Mechanism and Machine Theory*, 36(2):205–220, February 2001.
- [gao2002] Gao F. and others . New kinematic structures for 2-,3-,4- and 5-dof parallel manipulator designs. *Mechanism and Machine Theory*, 37(11):1395–1411, November 2002.
- [gao2005] Gao F., Zhang Y., and Li W. Type synthesis of 3-dof reducible translational mechanisms. *Robotica*, 23(2):239–245, 2005.
- [gao2007] Gao F. and others . The design and applications of f/t sensor based on Stewart platform. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [gaponenko2019] Gaponenko E.V., Malyshev D.I., and Behera L. Determination of output link positioning error of tripod module using numerical method. *Journal of Physics: Conference Series*, 1353:012083, November 2019.
- [garant2017] Garant X. and others . Improving the forward kinematics of cable-driven parallel robots through cable angle sensors. In *3rd Int. Conf. on cable-driven parallel robots (CableCon)*, Québec, 2017.
- [garcia-p2018] Garcia P. and others . Access systems to maritime energy production units. Review and new challenges. In *EUCOMES*, pages 181–188, Aachen, September, 4-6, 2018.
- [garcia2002] Garcia E., Zago L., and Gallieni D. Special and innovative aspects of the GTC M2 drive mechanism. In *SPIE Astronomical Telescopes and Instrumentation*, pages 448–455, Hawaii, August, 22-28, 2002.
- [garcia2011] Garcia C., Saltaren R., and Aracil R. Experiences in the development of a teleoperated parallel robot for aerial line maintenance. *Robotica*, 29(6):873–881, September 2011.
- [garcimurillo2014] Garcia-Murillo A.A. and others . Kinematic and dynamics of a 3 – *RPSR* parallel robot used as a pipe-bending machine. In *ARK*, Ljulbjana, June 29- July 3, 2014.
- [gassert2006] Gassert R. and others . A 2-dof MRI compatible haptic interface to investigate the neural control of arm movements. In *IEEE Int. Conf. on Robotics and Automation*, pages 3825–3831, Orlando, May, 16-18, 2006.
- [gassner2017] Gassner M., Cielewski T., and Scaramuzza D. Dynamic collaboration without communication: vision-based cable-suspended load transport with two quadrotors. In *IEEE Int. Conf. on Robotics and Automation*, Singapore, 2017.

- [gayral2013] Gayral T., Daney D., and Ducarne J. Flexure joints modeling for micrometer accuracy of an active 6-pus space telescope through experimental calibration. In *IEEE Int. Conf. on Robotics and Automation*, pages 4610–4615, Karlsruhe, May, 6-10, 2013.
- [gayral2013-1] Gayral T. and Daney D. Necessary condition for calibration and observation issues. In *Computational Kinematics*, Barcelona, May, 12-15, 2013.
- [gayral2013-2] Gayral T., Daney D., and Bernot M. Model discrepancy in robotic calibration: Its influence on the experimental parameter identification of a parallel space telescope. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 5803–5808, Tokyo, November, 3-7, 2013.
- [gayral2013-phd] Gayral T. *Étalonnage d'un télescope d'observation spatiale actif*. Ph.D. Thesis, Université de Nice-Sophia Antipolis, Nice, November, 29, 2013. **Keywords:** calibration, applications.
- [geike2003] Geike T. and McPhee J. Inverse dynamics analysis of parallel manipulators with full mobility. *Mechanism and Machine Theory*, 38(6):549–562, June 2003.
- [geng-rr-2016] Geng R.R., Mills J.K., and Yao Z-Y. Design and analysis of a novel 3-DOF spatial parallel microgripper driven by lums. *Robotics and Computer-Integrated Manufacturing*, 42:147–155, 2016.
- [geng-rr2016] Geng R-R., Mills J.K., and Yao Z-Y. Design and analysis of a novel 3-dof spatial parallel micromanipulator driven by LUMs. *Robotics and Computer-Integrated Manufacturing*, 42:147–159, 2016.
- [geng-x-2020] Geng X. and others . Analytical tension-distribution computation for cable-driven parallel robots using hypersphere mapping algorithm. *Mechanism and Machine Theory*, 145, 2020.
- [geng90] Geng Z., Haynes L.S., and Carroll R.L. Direct forward kinematic solution of a general Stewart platform. In *ISRAM*, volume 3, pages 11–17, Burnaby, July, 18-20, 1990.
- [geng91] Geng Z. and Haynes L.S. Neural network for the forward kinematics problem of a Stewart platform. In *IEEE Int. Conf. on Robotics and Automation*, pages 2650–2655, Sacramento, April, 11-14, 1991.
- [geng92] Geng Z. and Haynes L.S. On the dynamic model and kinematic analysis of a class of Stewart platforms. *Robotics and Autonomous Systems*, 9(4):237–254, 1992.
- [geng93] Geng Z. and Haynes L.S. Six-degree-of-freedom active vibration isolation using a Stewart platform mechanism. *J. of Robotic Systems*, 10(5):725–744, July 1993.
- [geng94] Geng Z. and Haynes L.S. An effective kinematics calibration method for Stewart platform. In *ISRAM*, pages 87–92, Hawaiï, August, 15-17, 1994.
- [geng94-1] Geng Z. and Haynes L.S. A 3-2-1 kinematic configuration of a Stewart platform and its application to six degree of freedom pose measurements. *Robotics and Computer-Integrated Manufacturing*, 11(1):23–34, March 1994.
- [geng94-2] Geng Z. and others . Six degree-of-freedom active vibration isolation and suppression experiments. In *5th Int. Conf. on Adaptive Structures*, pages 285–294, Sendai, December, 5-7, 1994.
- [germain2012] Germain C. and others . Constraint singularity-free design of IRSBot-2. In *ARK*, pages 341–348, Innsbruck, June, 25-28, 2012.
- [germain2012-1] Germain C. and others . IRSBot-2: a novel two-dof parallel robot for high-speed operations. In *35th Mechanisms and Robotics Conference, Parts A and B*, 2012.
- [germain2013] Germain C. and others . Singularity-free design of the translational parallel manipulator IRSBot-2. *Mechanism and Machine Theory*, 64:262–285, June 2013.
- [germain2013-phd] Germain C. *Conception d'un robot parallèle à deux degrés de liberté pour des opérations de prise et de dépose*. Ph.D. Thesis, Ecole Centrale de Nantes, Nantes, December, 9, 2013. **Keywords:** 2 dof robot, mechanical architecture, singularity.
- [germain2015] Germain C. and others . Natural frequency computation of parallel robots. *ASME Journal of Computational and Nonlinear Dynamics*, 10, 2015.

- [gertlet2013] Gertler I., Shapiro Y., and Wolf A. A haptic surface scanning and machining parallel manipulator for registration-free bone resurfacing during arthroplasty. In *IEEE Int. Conf. on Robotics and Automation*, pages 2339–2344, Karlsruhe, May, 6-10, 2013.
- [gezgin2019] Gezgin E. and others . Structural design of a positioning spherical parallel manipulator to be utilized in brain biopsy. *Int J Med Robotics Comput Assist Surg*, 15, 2019.
- [gharatappeh2015] Gharatappeh S. and others . Control of cable-driven parallel robot for gait rehabilitation. In *12th International Conference on Ubiquitous Robots and Ambient Intelligence (URAI)*, Goyang, October, 28-30, 2015.
- [gharatappeh2016] Gharatappeh S. and others . Design of a novel assist-as-needed controller for gait rehabilitation using a cable-driven robot. In *13th International Conference on Ubiquitous Robots and Ambient Intelligence (URAI)*, Xian, August, 19-22, 2016.
- [ghasemi2008] Ghasemimi A., Eghtesad M., and Farid M. Workspace analysis of planar and spatial redundant cable robots. In *Annual American Control Conference (ACC)*, Seattle, June, 11-13, 2008.
- [ghasemi2008-1] Ghasemimi A., Farid M., and Eghtesad M. Interference free workspace analysis of redundant 3d cable robots. In *2008 World Automation Congress*, 2008.
- [ghasemi2008-2] Ghasemimi A., Eghtesad M., and Farid M. Workspace analysis of redundant cable robots. In *2008 World Automation Congress*, 2008.
- [ghasemi2010] Ghasemimi A., Eghtesad M., and Farid M. Neural network solution for forward kinematics problem of cable robots. *J. of Intelligent and Robotic Systems*, 60:201–215, 2010.
- [gherman2012] Gherman B. and others . Development of inverse dynamic model for a surgical hybrid parallel robot with equivalent lumped masses. *Robotics and Computer-Integrated Manufacturing*, 28:402–415, 2012.
- [gherman2014] Gherman B. and others . On the kinematics of an innovative parallel robot for brachytherapy. In *ARK*, Ljubljana, June 29- July 3, 2014.
- [gherman2018] Gherman B. and others . A kinematic characterization of a parallel robotic system for lower limb rehabilitation. In *7th European Conf. on Mechanism Science (Eucomes)*, Aachen, September, 4-6, 2018.
- [ghobakhloo2005] Ghobakhloo A., , and Eghtesad M. Neural network solution for the forward kinematics problem of a redundant hydraulic shoulder. In *31st Annual Conference of IEEE Industrial Electronics Society, 2005. IECON 2005*, 2005.
- [gholami2008] Gholami P., Aref M.M., and Taghirad H.D. On the control of the KNTU CDRPM: A cable driven redundant parallel manipulator. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 2404–2409, Nice, France, September, 22-26, 2008.
- [ghorbel94] Ghorbel F., Chet  lat O., and Longchamp R. A reduced model for constrained rigid bodies with application to parallel robots. In *4th IFAC Symp. on Robot Control, Syroco*, pages 57–62, Capri, September, 19-21, 1994.
- [ghorbel2001] Ghorbel F. and others . Experimental validation of a reduced model based tracking control of parallel robots. In *IEEE Int. Conf. on Control Applications*, pages 375–381, Mexico, September, 5-7, 2001.
- [ghosal2001] Ghosal A. and Ravani B. A differential-geometric analysis of singularities of point trajectories of serial and parallel manipulators. *ASME J. of Mechanical Design*, 123(1):80–89, March 2001.
- [ghosh2016] Ghosh S. and Gan D. Design of passive 3-PRR planar parallel manipulators for self-alignment of exoskeleton axes. In *40th Mechanisms and Robotics Conference*, August 2016.
- [giberti2001] Giberti H., Righettini P., and Tasora A. Design and experimental test of a pneumatic translational 3 dof parallel manipulator. In *RAAD*, Vienna, May, 16-18, 2001.
- [gil2014] Gil A. and others . Implementation and assessment of a virtual laboratory of parallel robots developed for engineering students. *IEEE Trans. on Education*, 57(2), May 2014.
- [girone2001] Girone M. and others . A Stewart platform-based system for ankle telerehabilitation. *Autonomous Robots*, 10(2):203–212, March 2001.

- [glazunov89] Glazunov V.A., Koliskor A.Sh., and Model B.I. Determination of positions of output link of l-coordinate mechanisms. *Soviet Machine Science (Mashinovedenie)*, (3):49–53, 1989.
- [glazunov90] Glazunov V.A. and others . Classification principles and analysis methods for parallel-structure spatial mechanisms. *J. of Machinery Manufacture and Reliability*, (1):41–49, 1990.
- [glazunov2006] Glazunov V.A. Twists of movements of parallel mechanisms inside their singularities. *Mechanism and Machine Theory*, 41(9):1185–1195, September 2006.
- [glazunov2007] Glazunov V.A. and others . Representations of constraints imposed by kinematic chains of parallel mechanisms. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [glazunov2009] Glazunov V.A. and others . On new class of parallel-cross mechanisms. In *Computational Kinematics*, pages 93–100, Duisburg, May, 6-8, 2009.
- [glazunov2012] Glazunov V.A., Laryushkin P., and Kheylo S. 3-dof translational and rotational parallel manipulators. In *4th European Conf. on Mechanism Science (Eucomes)*, pages 199–207, Santander, September, 19-21, 2012.
- [gloss2000] Glöss R. Hexapod parallel kinematics with sub-micrometer accuracy. In *2nd Chemnitzer Parallelkinematik Seminar*, pages 397–404, Chemnitz, April, 12-13, 2000.
- [glozman2009] Glozman D. and Shoham M. Novel 6-dof parallel manipulator with large workspace. *Robotica*, 27(6):891–895, 2009.
- [godhole2017] Godhole H.A., Caverly R.J., and Forbes J.R. Modelling of flexible cable-driven parallel robots using a Rayleigh-Ritz approach. In *3rd Int. Conf. on cable-driven parallel robots (CableCon)*, Québec, 2017.
- [gogu2004] Gogu G. Structural synthesis of fully-isotropic translational parallel robots via theory of linear transformations. *European Journal of Mechanics A/Solids*, 23:1021–1039, 2004.
- [gogu2005] Gogu G. Mobility criterion and overconstraints of parallel manipulators. In *Computational Kinematics*, Cassino, May, 4-6, 2005.
- [gogu2005-1] Gogu G. Fully-isotropic over-constrained parallel wrists with two degrees of freedom. In *IEEE Int. Conf. on Robotics and Automation*, pages 4025–4030, Barcelona, April, 19-22, 2005.
- [gogu2005-2] Gogu G. Mobility of mechanisms: a critical review. *Mechanism and Machine Theory*, 40(10):1068–1097, October 2005.
- [gogu2005-3] Gogu G. Mobility and spatiality of parallel robots revisited via theory of linear transformations. *European Journal of Mechanics A/Solids*, 24:670–711, 2005.
- [gogu2005-4] Gogu G. Chebychev–Grübler–Kutzbach’s criterion for mobility calculation of multi-loop mechanisms revisited via theory of linear transformations. *European Journal of Mechanics A/Solids*, 24:6427–441, 2005.
- [gogu2006] Gogu G. Fully-isotropic parallel manipulators with Schönflies motions and complex legs with rhombus loops. In *IEEE Int. Conf. on Robotics and Automation*, pages 1147–1152, Orlando, May, 16-18, 2006.
- [gogu2006-1] Gogu G. Fully-isotropic parallel manipulators with five degrees of freedom. In *IEEE Int. Conf. on Robotics and Automation*, pages 1141–1146, Orlando, May, 16-18, 2006.
- [gogu2006-2] Gogu G. Fully-isotropic hexapods. In *ARK*, Ljubljana, June, 26-29, 2006.
- [gogu2007] Gogu G. Fully-isotropic three-degree-of-freedom parallel wrists. In *IEEE Int. Conf. on Robotics and Automation*, pages 895–900, Roma, April, 10-14, 2007.
- [gogu2007-1] Gogu G. Fully-isotropic T2R3-type redundantly-actuated parallel robots. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 3937–3942, San Diego, September, 22-26, 2007.
- [gogu2007-2] Gogu G. Reangularity: cross-coupling kinetostatic index for parallel robots. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [gogu2007-3] Gogu G. Structural synthesis of fully-isotropic parallel robots with Schönflies motions via theory of linear transformations and evolutionary morphology. *European Journal of Mechanics A/Solids*, 26:242–269, 2007.

- [gogu2008-1] Gogu G. *Structural Synthesis Of Parallel Robots, Part 1: Methodology*. Kluwer, Dordrecht, 2008. **Keywords:** structural synthesis.
- [gogu2008] Gogu G. Constraint singularities and the structural parameters of parallel robots. In *ARK*, pages 21–28, Batz/mer, June, 23-26, 2008.
- [gogu2008-2] Gogu G. Kinematic criteria for structural synthesis of maximally regular parallel robots with planar motion on the moving platform. In *1st Conf. on Interdisciplinary Applications in Kinematics*, Lima, January, 9-11, 2008.
- [gogu2009] Gogu G. *Structural Synthesis Of Parallel Robots, Part 2: Translational topologies with two and three degrees of freedom*. Kluwer, Dordrecht, 2009. **Keywords:** structural synthesis.
- [gogu2009-1] Gogu G. Branching singularities in kinematotropic parrallel mechanisms. In *Computational Kinematics*, Duisburg, May, 6-8, 2009.
- [gogu2010] Gogu G. *Structural Synthesis Of Parallel Robots, Part 3: Topologies with planar motion of the moving platform*. Kluwer, Dordrecht, 2010. **Keywords:** structural synthesis.
- [gogu2012] Gogu G. T2R1-type parallel manipulators with bifurcated planar-spatial motion. *European Journal of Mechanics A/Solids*, 33:1–41, 2012.
- [gojtan2013] Gojtan G.E.E., Furtado G.P., and Hess-Coelho T.A. Error analysis of a 3-dof parallel mechanism for milling applications. *J. of Mechanisms and Robotics*, 5(3), August 2013.
- [goldsmith2002] Goldsmith P.B. Kinematics and stiffness of a symmetrical 3-UPU translational parallel manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 4102–4106, Washington, May, 11-15, 2002.
- [goldsmith2003] Goldsmith P.B. Design and kinematics of a three-legged parallel manipulator. *IEEE Trans. on Robotics and Automation*, 19(4):727–731, August 2003.
- [goldsztejn2016] Goldsztejn A., Caro S., and Chabert G. A three-step methodology for dimensional tolerance synthesis of parallel manipulators. *Mechanism and Machine Theory*, 105:213–234, 2016.
- [goncalves2008] Gonçalves R.S. and Mendes Carvalho J.C. Stiffness analysis of parallel manipulator using matrix structural analysis. In *2nd European Conf. on Mechanism Science (Eucomes)*, Cassino, September, 17-20, 2008.
- [gong2007] Gong J., Zhang Y., and Gao F. Type synthesis of parallel robot based on the kinematic element. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [gonzales-rodriguez2017] Gonzales-Rodriguez A. and others . On the effect of the design of cable-driven robot on kinematics. *Mechatronics*, 43:18–27, 2017.
- [gonzales2013] Gonzales-Hernandez A. and Castillo-Castaneda E. Stiffness estimation of a parallel manipulator using image camera calibration techniques. *Robotica*, 31(4):657–667, April 2013.
- [gorguulu2020] Görgülü I., Carbone G., and Can Dede M.I. Time efficient stiffness model computation for a parallel haptic mechanism via the virtual joint method. *Mechanism and Machine Theory*, 143, 2020.
- [gorman2001] Gorman J.J., Jablolkow K.W., and Cannon D.J. The Cable Array Robot: theory and experiment. In *IEEE Int. Conf. on Robotics and Automation*, pages 2804–2810, Seoul, May, 23-25, 2001.
- [gosh2015] Gosh B.B., Sarkar B.K., and Saha R. Realtime performance analysis of different combinations of fuzzy-PID and bias controllers for a two degree of freedom electrohydraulic parallel manipulator. *Robotics and Computer-Integrated Manufacturing*, 34:62–69, August 2015.
- [gosselin-f-2001] Gosselin F. and Lallemand J-P. A new insight into the duality between serial and parallel non-redundant and redundant manipulators. *Robotica*, 19(4):365–370, July 2001.
- [gosselin-f-2008] Gosselin F. and others . Large workspace haptic devices for human-scale interaction: a survey. In *EuroHaptic*, 2008.

- [gosselin-f-2011] Gosselin F. and others . Specification and design of a new haptic interface for maxillo facial surgery. In *IEEE Int. Conf. on Robotics and Automation*, pages 737–744, Shangai, May, 9-13, 2011.
- [gosselin88] Gosselin C. and Angeles J. The optimum kinematic design of a planar three-degree-of-freedom parallel manipulator. *J. of Mechanisms, Transmissions and Automation in Design*, 110(1):35–41, March 1988.
- [gosselin88-phd] Gosselin C. *Kinematic analysis optimization and programming of parallel robotic manipulators*. Ph.D. Thesis, McGill University, Montréal, June, 15, 1988. **Keywords:** mechanical architecture,optimal design,planar robot,kinematics,spherical robot,workspace.
- [gosselin89] Gosselin C. Determination of the workspace of 6-dof parallel manipulators. In *ASME Design Engineering Technical Conference*, pages 321–326, Montréal, September, 17-20, 1989.
- [gosselin89-1] Gosselin C. and Angeles J. The optimum kinematic design of a spherical three-degree-of-freedom parallel manipulator. *J. of Mechanisms, Transmissions and Automation in Design*, 111(2):202–207, 1989.
- [gosselin90] Gosselin C. Stiffness mapping for parallel manipulators. *IEEE Trans. on Robotics and Automation*, 6(3):377–382, June 1990.
- [gosselin90-1] Gosselin C. Determination of the workspace of 6-dof parallel manipulators. *ASME J. of Mechanical Design*, 112(3):331–336, September 1990.
- [gosselin90-2] Gosselin C. and Angeles J. Singularity analysis of closed-loop kinematic chains. *IEEE Trans. on Robotics and Automation*, 6(3):281–290, June 1990.
- [gosselin90-3] Gosselin C. and Angeles J. Kinematic inversion of parallel manipulators in the presence of incompletely specified tasks. *ASME J. of Mechanical Design*, 112(4):494–500, December 1990.
- [gosselin92] Gosselin C., Sefrioui J., and Richard M.J. Solution polynomiale au problème de la cinématique directe des manipulateurs parallèles plans à 3 degrés de liberté. *Mechanism and Machine Theory*, 27(2):107–119, March 1992.
- [gosselin92-1] Gosselin C. and Lavoie E. Spherical parallel manipulators: dexterity and isotropy. In *ARK*, pages 143–149, Ferrare, September, 7-9, 1992.
- [gosselin92-2] Gosselin C. and Sefrioui J. Determination of the singular loci of spherical 3 d.o.f parallel manipulators. In *22nd Biennial Mechanisms Conf.*, volume DE-45, pages 329–336, Scottsdale, September, 13-16, 1992.
- [gosselin92-3] Gosselin C., Lavoie E., and Toutant P. An efficient algorithm for the graphical representation of the three-dimensional workspace of parallel manipulators. In *22nd Biennial Mechanisms Conf.*, pages 323–328, Scottsdale, September, 13-16, 1992.
- [gosselin92-4] Gosselin C., Sefrioui J., and Richard M.J. On the direct kinematics of a class of spherical three-degree-of-freedom parallel manipulators. In *22nd Biennial Mechanisms Conf.*, pages 13–19, Scottsdale, September, 13-16, 1992.
- [gosselin92-5] Gosselin C., Sefrioui J., and Richard M.J. On the direct kinematics of general spherical three-degree-of-freedom parallel manipulators. In *22nd Biennial Mechanisms Conf.*, pages 7–11, Scottsdale, September, 13-16, 1992.
- [gosselin93] Gosselin C.M and Lavoie E. On the kinematic design of spherical three-degree-of-freedom parallel manipulators. *Int. J. of Robotics Research*, 12(4):394–402, August 1993.
- [gosselin94] Gosselin C. and Merlet J-P. On the direct kinematics of planar parallel manipulators: special architectures and number of solutions. *Mechanism and Machine Theory*, 29(8):1083–1097, November 1994.
- [gosselin94-1] Gosselin C. and Hamel J.-F. The Agile Eye: A high performance three-degree-of-freedom camera-orienting device. In *IEEE Int. Conf. on Robotics and Automation*, pages 781–787, San Diego, May, 8-13, 1994.
- [gosselin94-2] Gosselin C. and Hamel J.-F. Development and experimentation of a fast three-degree-of-freedom spherical parallel manipulator. In *ISRAM*, pages 229–234, Hawaiï, August, 14-18, 1994.

- [gosselin94-3] Gosselin C., Perreault T., and Vaillancourt C. Smaps: a computer-aided design package for the analysis and optimization of a spherical parallel manipulators. In *ISRAM*, pages 115–120, Hawaiï, August, 14-18, 1994.
- [gosselin94-4] Gosselin C., Sefrioui J., and Richard M.J. On the direct kinematics of spherical three-degree-of-freedom parallel manipulators with a coplanar platform. *ASME J. of Mechanical Design*, 116(2):587–593, June 1994.
- [gosselin94-5] Gosselin C., Cloutier C., and Rancourt D. Kinematic analysis of spherical two degree-of-freedom parallel manipulators. In *ASME 23rd Biennal Mechanisms Conf.*, pages 255–262, Minneapolis, September, 11-14, 1994.
- [gosselin94-6] Gosselin C., Sefrioui J., and Richard M.J. On the direct kinematics of spherical three-degree-of-freedom parallel manipulators of general architecture. *ASME J. of Mechanical Design*, 116(2):594–598, June 1994.
- [gosselin95] Gosselin C. and Gagné M. A closed-form solution for the direct kinematics of a special class of spherical three-degree-of-freedom parallel manipulators. In J-P. Merlet B. Ravani, editor, *Computational Kinematics*, pages 231–240. Kluwer, 1995. **Keywords:** spherical robot, forward kinematics, 3 dof robot, wrist.
- [gosselin95-1] Gosselin C. and Wang J. Singularity loci of planar parallel manipulator. In *9th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 1982–1986, Milan, August 30- September 2, 1995.
- [gosselin95-2] Gosselin C., Perreault L., and Vaillancourt C. Simulation and computer-aided kinematic design of three-degree-of-freedom spherical parallel manipulators. *J. of Robotic Systems*, 12(12):857–869, 1995.
- [gosselin96] Gosselin C. Kinematische und statische analysis eines ebenen parallelen manipulators mit dem freiheitsgrad zwei. *Mechanism and Machine Theory*, 31(2):149–160, February 1996.
- [gosselin96-1] Gosselin C., Lemieux S., and Merlet J-P. A new architecture of planar three-degree-of-freedom parallel manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 3738–3743, Minneapolis, April, 24-26, 1996.
- [gosselin96-2] Gosselin C. Parallel computational algorithms for the kinematics and dynamics of planar and spatial parallel manipulators. *ASME J. of Dynamic Systems, Measurement and Control*, 118(1):22–28, March 1996.
- [gosselin97] Gosselin C. and Wang J. Singularity loci of planar parallel manipulators with revolute actuators. *Robotics and Autonomous Systems*, 21(4):377–398, October 1997.
- [gosselin97-1] Gosselin C. and St-Pierre E. Development and experimentation of a fast 3-dof orienting device. *Int. J. of Robotics Research*, 16(15):619–630, October 1997.
- [gosselin98] Gosselin C. and Wang J. On the design of gravity-compensated six-degree-of-freedom parallel mechanisms. In *IEEE Int. Conf. on Robotics and Automation*, pages 2287–2294, Louvain, May, 18-20, 1998.
- [gosselin98-1] Gosselin C. and Wang J. On the design of statically balanced motion bases for flight simulators. In *AIAA, Flight Simulation Technologies Conference*, pages 272–282, Boston, August, 21-24, 1998.
- [gosselin99] Gosselin C.M. and others . On the design of a statically balanced 6-dof parallel manipulator. In *10th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 1045–1050, Oulu, June, 20-24, 1999.
- [gosselin99-1] Gosselin C.M. Static balancing of spherical 3-dof parallel mechanisms and manipulators. *Int. J. of Robotics Research*, 18(8):812–829, August 1999.
- [gosselin2000] Gosselin C.M. and Wang J. Static balancing of spatial six-degree-of-freedom parallel mechanisms with revolute actuators. *J. of Robotic Systems*, 17(3):159–170, 2000.
- [gosselin2002] Gosselin C.M. and Wu Y. On the development of reactionless spatial 3-dof parallel-piped mechanisms. In *ASME Design Engineering Technical Conference*, Montréal, September 29- October 2, 2002.
- [gosselin2002-1] Gosselin C.M. and Wang J. Singularity loci of a special class of spherical three degree-of-freedom parallel mechanism with revolute actuators. *Int. J. of Robotics Research*, 21(7):649–659, July 2002.
- [gosselin2004] Gosselin C.M. and others . Synthesis and design of reactionless three-degree-of-freedom mechanisms. *IEEE Trans. on Robotics and Automation*, 20(2):191–199, April 2004.



- [gosselin2007] Gosselin C.M. and others . Parallel mechanisms of the Multipteron family: kinematic architectures and benchmarking. In *IEEE Int. Conf. on Robotics and Automation*, pages 555–560, Roma, April, 10-14, 2007.
- [gosselin2010] Gosselin C., Lefrancois S., and Zoso N. Underactuated cable-driven robots: machine, control and suspended bodies. In *Brain, Body and Machine*, pages 311–323, McGill, 2010.
- [gosselin2011] Gosselin C. and Grenier M. On the determination of the force distribution in overconstrained cable-driven parallel mechanisms. *Meccanica*, 46:3–15, 2011.
- [gosselin2012] Gosselin C.M., Ren P., and Foucault S. Dynamic trajectory planning of a two-dof cable-suspended parallel robot. In *IEEE Int. Conf. on Robotics and Automation*, pages 1476–1481, Saint Paul, May, 14-18, 2012.
- [gosselin2012-1] Gosselin C.M. Global planning of dynamically feasible trajectories for three-dof spatial cable-suspended parallel robots. In *1st Int. Conf. on cable-driven parallel robots (CableCon)*, pages 3–22, Stuttgart, September, 3-4, 2012.
- [gosselin2014] Gosselin C.M. and Foucault S. Experimental determination of the accuracy of a three-dof cable-suspended parallel robot performing dynamic trajectories. In *2nd Int. Conf. on cable-driven parallel robots (CableCon)*, pages 3–16, Duisburg, August, 24-27, 2014.
- [gosselin2015] Gosselin C., Laliberté T., and Veillette A. Singularity-free kinematically redundant planar parallel mechanism with unlimited rotational capability. *IEEE Trans. on Robotics*, 31(2):457–467, April 2015.
- [gosselin2014-1] Gosselin C. Cable-driven parallel mechanisms: state of the art and perspectives. *Bulletin of the JSME*, 1(1), 2014.
- [gosselin2016] Gosselin C. and Schreiber L-T. Kinematically redundant spatial parallel mechanisms for singularity avoidance and large orientational workspace. *IEEE Trans. on Robotics*, 32(2):286–300, April 2016.
- [gosselin2016-1] Gosselin C. and others . Workspace and sensitivity analysis of a novel nonredundant parallel scara robot featuring infinite tool rotation. *IEEE Robotics and Automation Letters*, 1(2), 2016.
- [gosselin2018] Gosselin C and Schreiber L-T. Redundancy in parallel mechanisms: A review. *Applied Mechanics Reviews*, 70(1), January 2018.
- [goswami91] Goswami A. and Peshkin M.A. A task-space formulation of passive force control. In *IEEE Int. Symp. on Intelligent Control*, pages 95–100, Arlington, August, 13-15, 1991.
- [goswami99] Goswami A. and Peshkin M.A. Mechanically implementable accomodation matrices for passive force control. *Int. J. of Robotics Research*, 18(7), 1999.
- [gotelli2022] Gotelli A. and others . A Gazebo simulator for continuum parallel robots. In *ARK*, Bilbao, June, 26-30, 2022.
- [goudali95] Goudali A., Lallemand J-P., and Zeghloul S. Espace de travail de la nouvelle structure 2-Delta. *Revue d'Automatique et de Productique Appliquée*, 8(2-3):205–210, 1995.
- [goudali96] Goudali A., Lallemand J-P., and Zeghloul S. Modeling of the 2-Delta 6-dof decoupled parallel robot. In *6th ISRAM*, pages 243–248, Montpellier, May, 28-30, 1996.
- [gough56] Gough V.E. Contribution to discussion of papers on research in automobile stability, control and tyre performance, 1956-1957. Proc. Auto Div. Inst. Mech. Eng. **Keywords:** mechanical architecture, applications.
- [gough62] Gough V.E. and Whitehall S.G. Universal tyre test machine. In *Proceedings 9th Int. Technical Congress F.I.S.I.T.A.*, volume 117, pages 117–135, London, May 1962.
- [gouttefarde2004] Gouttefarde M. and Gosselin C.M. On the properties and determination of the wrench-closure workspace of planar parallel cable-driven manipulator. In *ASME Design Engineering Technical Conference*, Salt Lake City, September 28- October 2, 2004.
- [gouttefarde2005-phd] Gouttefarde M. *Analyse de l'espace des poses polyvalentes des mécanismes parallèles entraînés par câbles*. Ph.D. Thesis, Université Laval, Québec, 2005. **Keywords:** wire robot, workspace.

- [gouttefarde2006] Gouttefarde M., Merlet J-P., and Daney D. Determination of the wrench-closure workspace of 6-dof parallel cable-driven mechanisms. In *ARK*, pages 315–322, Ljubljana, June, 26-29, 2006.
- [gouttefarde2006-1] Gouttefarde M. and Gosselin C.M. Analysis of the wrench-closure workspace of planar parallel cable-driven mechanisms. *IEEE Trans. on Robotics*, 22(3):434–445, 2006.
- [gouttefarde2007] Gouttefarde M., Merlet J-P., and Daney D. Wrench-feasible workspace of parallel cable-driven mechanisms. In *IEEE Int. Conf. on Robotics and Automation*, pages 1492–1497, Roma, April, 10-14, 2007.
- [gouttefarde2011] Gouttefarde M., Daney D., and Merlet J-P. Interval-analysis based determination of the wrench-feasible workspace of parallel cable-driven robots. *IEEE Trans. on Robotics*, 27(1):1–13, February 2011.
- [gouttefarde2014] Gouttefarde M., Nguyen D.Q., and Baradat C. Kinetostatics analysis of cable-driven parallel robots with consideration of sagging and pulleys. In *ARK*, pages 213–221, Ljubljana, June 29- July 3, 2014.
- [gouttefarde2015] Gouttefarde M., Collard J.F., Riehl N., and Baradat C. Geometry selection of a redundantly actuated cable-suspended parallel robot. *IEEE Trans. on Robotics*, 31(2):501–510, April 2015.
- [gouttefarde2015-1] Gouttefarde M. and others . A versatile tension distribution algorithm for n-dof parallel robots driven by  $n + 2$  cables. *IEEE Trans. on Robotics*, 31(6), December 2015.
- [gouttefarde2016-h] Gouttefarde M. Analysis and synthesis of large-dimension cable-driven parallel robots, November, 21, 2016. Habilitation à diriger les recherches, Université Montpellier. **Keywords:** wire robot.
- [gouttefarde2010] Gouttefarde M. and Krut S. Characterization of parallel manipulator available wrench set facets. In *ARK*, pages 475–484, Piran, June 28- July 1, 2010.
- [gouttefarde2012] Gouttefarde M. and others . Simplified static analysis of large-dimension parallel cable-driven robots. In *IEEE Int. Conf. on Robotics and Automation*, pages 2299–2305, Saint Paul, May, 14-18, 2012.
- [grace93] Grace K.W. and others . A six degree of freedom micromanipulator for ophthalmic surgery. In *IEEE Int. Conf. on Robotics and Automation*, pages 630–635, Atlanta, May, 2-6, 1993.
- [graf97] Graf R. and Dillmann R. Active acceleration using a Stewart-platform on a mobile robot. In *2nd EUROMI-CRO Workshop on Advanced Mobile Robots*, pages 59–64, Brescia, October, 22-24, 1997.
- [graf98] Graf R., Vierling R., and Dillmann R. A flexible controller for a Stewart platform. In *2nd Int. Conf. on knowledge-based intelligent electronic Systems*, pages 52–59, Adelaide, April, 21-23, 1998.
- [graham2006] Graham A.E. and others . Design of a parallel long bone fracture reduction robot with planning treatment tool. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Beijing, October, 9-15, 2006.
- [grandon2007] Grandón C., Daney D., Papegay Y., and others . Certified pose determination under uncertainties. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [grant95] Grant D. and Hayward V. Design of shape memory alloy actuator with high strain and variable structure control. In *IEEE Int. Conf. on Robotics and Automation*, pages 2305–2312, Nagoya, May, 25-27, 1995.
- [griffis89] Griffis M. and Duffy J. A forward displacement analysis of a class of Stewart platform. *J. of Robotic Systems*, 6(6):703–720, 1989.
- [griffis94] Griffis M., Crane C., and Duffy J. A smart kinestatic interactive platform. In *ARK*, pages 459–464, Ljubljana, July, 4-6, 1994.
- [grimbert87] Grimbert D. and Marchal P. Dynamic testing of a docking system. In *First European In-Orbit Operations Technology Symposium*, pages 281–288, Darmstadt, September, 7-9, 1987.
- [grimstad2017] Grimstad L. and others . Kinematic modeling and control design of a novel single-rail parallel arm. In *20th IFAC World Congress*, 2017.
- [gronbach2002] Gronbach H. Tricenter- a universal milling machine with hybrid kinematics. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 595–608, Chemnitz, April, 23-25, 2002.

- [grosch2010] Grosh P. and others . Motion planning for a novel reconfigurable parallel manipulator with lockable revolute joints. In *IEEE Int. Conf. on Robotics and Automation*, pages 4697–4702, Anchorage, May, 3-8, 2010.
- [grosch2013] Grosh P. and Thomas F. A bilinear formulation for the planning of non holonomic parallel orienting platform. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 953–958, Tokyo, November, 3-7, 2013.
- [grosch2016] Grosch P. and Thomas F. Geometric path planning without maneuvers for nonholonomic parallel orienting robots. *IEEE Robotics and Automation Letters*, 1(2), 2016.
- [grosch2016-phd] Grosh P. *Parallel robots with unconventional joints to achieve under-actuation and reconfigurability*. Ph.D. Thesis, Universitat Politècnica de Catalunya, Barcelone, June 2016. **Keywords:** mechanical architecture.
- [grotjahn2004] Grotjahn M., Heimann B., and Abdellatif H. Identification of friction and rigid-body dynamics of parallel kinematic structures for model-based control. *Multibody System Dynamics*, 11(3):273–294, April 2004.
- [grunewald84] Grunewald P. Car body painting with the spine spray system. In *14th Int. Symp. on Industrial Robots (ISIR)*, pages 633–641, Gothenburg, 1984.
- [guay2013] Guay F. and otehrs . Measuring how well a structure supports varying external wrenches. In *Second Conference on Mechanisms, Transmissions and Applications (MeTrApp 2013)*, Bilbao, October 2013.
- [guegan2002] Guégan S. and Khalil W. Dynamic modeling of the Orthoglide. In *ARK*, pages 387–396, Caldes de Malavalla, June 29- July 2, 2002.
- [guegan2003-phd] Guégan S. *Contribution à la modélisation et l’identification dynamique des robots parallèles*. Ph.D. Thesis, Ecole Centrale de Nantes, Nantes, December, 5, 2003. **Keywords:** dynamics,calibration.
- [gueners2020] Gueners D., Chanal H., and Bouzgarrou B.C. Stiffness optimization of a cable driven parallel robot for additive manufacturing. In *IEEE Int. Conf. on Robotics and Automation*, Paris, May 31- August 31, 2020.
- [guglielmetti94] Guglielmetti P. and Longchamp R. A closed-form inverse dynamics model of the Delta parallel robot. In *4th IFAC Symp. on Robot Control, Syroco*, pages 51–56, Capri, September, 19-21, 1994.
- [guglielmetti94-phd] Guglielmetti P. *Model-Based control of fast parallel robots: a global approach in operational space*. Ph.D. Thesis, EPFL, Lausanne, March, 24, 1994. **Keywords:** dynamics,hardware.
- [guo-f2019] Guo F. and others . Interior singularity analysis for a (2(3HUS+S) parallel manipulator with descending matrix rank method. *International Journal of Advanced Robotic Systems*, 2019.
- [guo-f2021] Guo F., Cheng G., and Yuan X. Fatigue life and reliability analysis of a parallel hip joint simulator. *Robotica*, 39:2079–2093, 2021.
- [guo-h2008] Guo H. and others . Cascade control of a hydraulically driven 6-dof parallel robot manipulator based on a sliding mode. *Control Eng. Practice*, 16(9):1055–1068, September 2008.
- [guo-j2008] Guo J. and others . Analysis and the processing of the dexterity of parallel robot based on Matlab. In *ICIRA*, pages 208–215, Wuhan, October, 15-17, 2008.
- [guo-j2014] Guo J. and others . A ship active vibration isolation system based on a novel 5-dof parallel mechanism. In *International Conference on Information and Automation (ICIA)*, 2014.
- [guo-k2016] Guo K. and others . A monolithic adjusting mechanism for optical element using a modified 6-PSS parallel mechanism. *Sensors and Actuators A*, 251:1–9, 2016.
- [guo-s2016] Guo S. and others . A serial of novel four degrees of freedom parallel mechanisms with large rotational workspace. *Robotica*, 34(4):764–776, April 2016.
- [guo2006] Guo Z., McInroy J.E., and Jafari F. Realization of micromanipulating Gough-Stewart platforms with desired dynamics. In *IEEE Int. Conf. on Robotics and Automation*, pages 655–660, Orlando, May, 16-18, 2006.

- [guozhen92] Guozhen W. Forward displacement analysis of a class of the 6-6 Stewart platforms. In *22nd Biennial Mechanisms Conf.*, volume DE-45, pages 113–117, Scottsdale, September, 13-16, 1992.
- [gupta2008] Gupta A. and others . Design, control and performance of RiceWrist: a force feedback wrist exoskeleton for rehabilitation and training. *Int. J. of Robotics Research*, 27(2):233–251, February 2008.
- [gwinnett31] Gwinnett J.E. Amusement device, January, 20, 1931. United States Patent n° 1,789,680. **Keywords:** applications, patent.
- [hadden-2001] Hadden S. and others . Ultraquiet platform for active vibration isolation. In *SPIE Smart structures and Materials*, pages 171–182, Newport Beach, March, 4-8, 2001.
- [hadorn2002] Hadorn M. Concept and application of a model-based control input compensation for parallel-kinematic machine tools. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 351–369, Chemnitz, April, 23-25, 2002.
- [hafez2003] Hafez M., Lichter M.D., and Dubowsky S. Optimized binary modular reconfigurable robotic devices. *IEEE/ASME Trans. on Mechatronics*, 8(1):152–162, March 2003.
- [hahn-h2005"] Hahn H. Mathematical modeling, control, computer simulation and laboratory experiments of a spatial servopneumatic parallel robot part i mathematical models, controllers, and computer simulations. *Nonlinear Dynamics*, 40:387–417, 2005.
- [hahn-h2006"] Hahn H. and Neumann M. Mathematical modeling, control, computer simulation and laboratory experiments of a spatial servopneumatic parallel robot part ii: Robot construction and laboratory experiments. *Nonlinear Dynamics*, 45:207–226, 2006.
- [hahn-h99"] Hahn H., Lier W., and Leimbach K-D. Nonlinear control of planar parallel robots with redundant servopneumatic actuators. *Z. Angew. Math. Mech. (ZAMM)*, 79, 1999.
- [hahn87] Hahn S. and Kalb E. The Daimler-Benz driving simulator set-up and results of first experiments. In *Summer Computer Simulation Conf.*, pages 993–997, Montréal, July, 23-30, 1987.
- [hamid2009] Hamid S.A. and Simaan N. Design and synthesis of wire-actuated universal-joint wrists for surgical applications. In *IEEE Int. Conf. on Robotics and Automation*, pages 1807–1813, Kobe, May, 14-16, 2009.
- [hamlin94] Hamlin G.J. and Sanderson A.C. A novel concentric multilink spherical joint with parallel robotics applications. In *IEEE Int. Conf. on Robotics and Automation*, pages 1267–1272, San Diego, May, 8-13, 1994.
- [hamlin97] Hamlin G.J. and Sanderson A.C. Tetrobot: a modular approach to parallel robotics. *IEEE Robotics and Automation Magazine*, 4(1):42–50, March 1997.
- [han-c-2002] Han C. and others . Kinematic sensitivity analysis of the 3-UPU parallel manipulator. *Mechanism and Machine Theory*, 37(8):787–798, August 2002.
- [han-g2020] Han G. and others . Technology-oriented synchronous optimal design of a 4-degrees-of-freedom high-speed parallel robot. *ASME J. of Mechanical Design*, 142, October 2020.
- [han-h2019] Han H. and others . Kinematics analysis and testing of novel 6 –  $\underline{P}$  –  $RR$  –  $R$  –  $RR$  parallel platform with offset  $RR$ -joints. *Proc. Instn Mech Engrs, Part C: J. Mechanical Engineering Science*, 233(10), 2019.
- [han-je2013] Han J-E., Kim D., and Yun K-S. All-polymer hair structure with embedded three-dimensional piezoresistive force sensors. *Sensors and Actuators A*, 188:89–94, December 2012.
- [han-k95] Han K., W. Chung, and Youm Y. Local structurization for the forward kinematics of parallel manipulators using extra sensor data. In *IEEE Int. Conf. on Robotics and Automation*, pages 514–520, Nagoya, May, 25-27, 1995.
- [han-k96] Han K., W. Chung, and Youm Y. New resolution scheme of the forward kinematics of parallel manipulators using extra sensor data. *ASME J. of Mechanical Design*, 118(2):214–219, June 1996.
- [han-l2000] Han L., Liao Q., and Liang C. Forward displacement analysis of one kind of general 5-5 parallel manipulators. *Mechanism and Machine Theory*, 35(2):271–289, February 2000.

- [han89] Han C-S, Tesar D., and Traver A. The optimum design of a 6 dof fully parallel micromanipulator for enhanced robot accuracy. In *ASME Design Automation Conf.*, pages 357–363, Montréal, September, 17-20, 1989.
- [han91] Han C-S., Hudgens J.C., Tesar D., and Traver A.E. Modeling, synthesis, analysis and design of high resolution micromanipulator to enhance robot accuracy. In *IEEE Int. Conf. on Intelligent Robot and Systems (IROS)*, pages 1153–1162, Osaka, November, 3-5, 1991.
- [hanahara2003] Hanahara K. and Tada Y. Dynamic behavior of truss-type parallel mechanism with actuated wire members. In *11th ICAR*, pages 1793–1798, Coimbra, June 30- July 3, 2003.
- [hao-j2013] Hao J. and others . Modeling, control and software implementation of astronomical tracking of focus cabin suspension of FAST. In *International Conference on Robotics and Biomimetics*, Shenzhen, December 2013.
- [hao-r2016] Hao R., Wang J., Zhao J., and Wang S. Observer-based robust control of 6-dof parallel electrical manipulator with fast friction estimation. *IEEE Trans. on Automation Science and Engineering*, 13(3):1399–1408, July 2016.
- [hao98] Hao F. and McCarthy J.M. Conditions for line-based singularities in spatial platform manipulators. *J. of Robotic Systems*, 15(1):43–55, 1998.
- [haog2014] Hao G. and Kong X. Non linear analytical modeling and characteristics analysis of symmetrical wire beam based composite compliant parallel modules for planar motion. *Mechanism and Machine Theory*, 77:122–147, 2014.
- [haog2015] Hao G. and Li H. Design of 3-legged XYZ compliant parallel manipulators with minimized parasitic rotations. *Robotica*, 33(4):787–806, May 2015.
- [haog2016] Hao G. and Yu J. Design, modelling and analysis of a completely-decoupled xy compliant parallel manipulator. *Mechanism and Machine Theory*, 102:179–185, 2016.
- [haouas2019] Haouas W. and others . Kinematics, design and experimental validation of a novel parallel robot for two-fingered dexterous manipulation. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Macau, November, 4-8, 2019.
- [hara89] Hara A. and Sugimoto K. Synthesis of parallel micromanipulators. *J. of Mechanisms, Transmissions and Automation in Design*, 111(1):34–39, March 1989.
- [harada2009] Harada T. and Nagase M. Configurations and mathematical models of parallel link mechanisms using multi drive linear motors. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, St Louis, October, 11-15, 2009.
- [harib-kh2012] Harib K.H., Sharrif Ullah A.M.M., and Moustafa K.A.F. Optimal design for improved hybrid kinematic machine-tools structure. In *8th CIRP International Conference on Intelligent Computation in Manufacturing Engineering*, pages 109–114, Ischia, July, 18-20, 2012.
- [harib2003] Harib K. and Srinivasan K. Kinematic and dynamic analysis of Stewart platform-based machine tool structures. *Robotica*, 21(5):541–554, October 2003.
- [harris95] Harris D.M.J. A hydraulic parallel-linkage robot. In *9th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 1695–1699, Milan, August 30- September 2, 1995.
- [harris95-1] Harris D.M.J. Parallel-linkage robot coordinate transformation through screw theory. In *9th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 1565–1568, Milan, August 30- September 2, 1995.
- [harris2007] Harris D.M.J. Direct motion of a parallel-linkage robot through the jacobian. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [harshe2012-phd] Harshe M. *Analyse et conception d’un système de rééducation de membres inférieurs reposant sur un robot parallèle à câbles*. Ph.D. Thesis, Université de Nice, Nice, November 2012. **Keywords:** wire robot, medical.

- [hashimoto92] Hashimoto M. and Imamura Y. Design and simulation of a parallel link compliant wrist. In *IMACS/SICE Int. Symp. on Robotics, Mechatronics, and Manufacturing Systems*, pages 439–444, Kobe, September, 16-20, 1992.
- [hashimoto94] Hashimoto M. and Imamura Y. Design and characteristics of a parallel link compliant wrist. In *IEEE Int. Conf. on Robotics and Automation*, pages 2457–2462, San Diego, May, 8-13, 1994.
- [hashimoto2007] Hashimoto K. and others . Optimization design of a Stewart platform type leg mechanism for biped walking vehicle. In *13th ISRR*, pages 209–218, Hiroshima, September, 26-29, 2007.
- [haslinger2013] Haslinger R., Leyendecker , and Seibold U. A fiberoptic force-torque-sensor for minimally invasive robotic surgery. In *IEEE Int. Conf. on Robotics and Automation*, pages 4375–4380, Karlsruhe, May, 6-10, 2013.
- [hassan2004] Hassan M. and Notash L. Analysis of active joint failure in parallel robot manipulators. *ASME J. of Mechanical Design*, 126(6):959–968, November 2004.
- [hassan2005] Hassan M. and Notash L. Design modification of parallel manipulators for optimum fault tolerance to joint jam. *Mechanism and Machine Theory*, 40(5):559–577, May 2005.
- [hassan2007] Hassan M. and Notash L. Optimizing fault tolerance to joint jam in the design of parallel robot manipulators. *Mechanism and Machine Theory*, 42(10):1401–1417, October 2007.
- [hassan2007-1] Hassan M. and Khajepour A. Minimum-norm solution for the actuator forces in cable-based parallel manipulators based on convex optimization. In *IEEE Int. Conf. on Robotics and Automation*, pages 1498–1503, Roma, April, 10-14, 2007.
- [hassan2008] Hassan M. and Khajepour A. *Layout and force optimisation in cable-driven parallel manipulators*, chapter 5, pages 1–25. Springer, 2008. **Keywords:** wire robot,statics,optimal design.
- [hassan2008-1] Hassan M. and Khajepour A. Optimization of actuator forces in cable-based parallel manipulators using convex analysis. *IEEE Trans. on Robotics*, 34(3), June 2008.
- [hassan2011] Hassan M. and Khajepour A. Analysis of bounded cable tensions in cable-actuated parallel manipulators. *IEEE Trans. on Robotics*, 27(5), October 2011.
- [hassanzadeh2014] Hassanzadeh H.R. and others . An interval-valued fuzzy controller for complex dynamical systems with application to a 3-PSP parallel robot. *Fuzzy Sets and Systems*, 235:83–100, 2014.
- [hatip95] Hatip O.E. and Ozgoren M.K. Utilization of a Stewart platform mechanism as a stabilizator. In *9th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 1393–1396, Milan, August 30- September 2, 1995.
- [haugh95] Haugh E.J., Adkins F.A., and Luh C.M. Domain of operation and interference for bodies in mechanisms and manipulators. In J-P. Merlet B. Ravani, editor, *Computational Kinematics*, pages 193–202. Kluwer, 1995. **Keywords:** workspace.
- [haugh98] Haugh E.J., Adkins F.A., and Luh C.M. Operational envelopes for working bodies of mechanisms and manipulators. *ASME J. of Mechanical Design*, 120(1):84–91, March 1998.
- [hay2000] Hay A.M. and Snyman J.A. The determination of non convex workspaces of generally constrained planar Stewart platforms. *Computers and Mathematics with Applications*, 40(8-9):1043–1060, - November 2000.
- [hay2002] Hay A.M. and Snyman J.A. The optimal synthesis of parallel manipulators for desired workspace. In *ARK*, pages 337–346, Caldes de Malavalla, June 29- July 2, 2002.
- [hay2002-1] Hay A.M. and Snyman J.A. The synthesis of parallel mnaipulator for a prescribed workspace. In *ASME Design Engineering Technical Conference*, Montréal, September 29- October 2, 2002.
- [hayawi2016] Hayawi M.J. and others . Kinematic and dexterity analysis of a 3-dof parallel manipulator. *Journal of Applied Sciences, Engineering and Technology*, 12(2):239–248, - November 2000.
- [hayes96] Hayes M.J.D. and Zsombor-Murray P.J. Kinematic mapping of 3-legged planar platform with holonomic higher pair. In *ARK*, pages 421–430, Portoroz-Bernadin, June, 22-26, 1996.

- [hayes98] Hayes M.J.D. and Zsombor-Murray P.J. Inverse kinematics of a planar manipulator with holonomic higher pairs. In *ARK*, pages 59–68, Strobl, June 29- July 4, 1998.
- [hayes99] Hayes M.J.D., Husty M.L., and Zsombor-Murray P.J. Solving the forward kinematics of a planar three-legged platform with holonomic higher pairs. *ASME J. of Mechanical Design*, 121(2):212–219, June 1999.
- [hayes2000] Hayes M.J.D. and Husty M.L. Workspace characterization of planar three-legged platforms with holonomic higher pairs. In *ARK*, pages 267–276, Piran, June, 25-29, 2000.
- [hayes2003] Hayes M.J.D. and Husty M.L. On the kinematic constraint surfaces of general three-legged planar robot platforms. *Mechanism and Machine Theory*, 38(5):379–394, May 2003.
- [haynes93] Haynes L.S., Geng Z., and Teter J. A new Terfenol-D actuator design with applications to multiple DOF active vibration control. In *SPIE Smart structures and Intelligent systems*, pages 919–928, Albuquerque, February, 1-4, 1993.
- [hayward89] Hayward V. and Kurtz R. Preliminary study of serial-parallel redundant manipulator. In *NASA Conference on Space Telerobotics*, pages 39–48, Pasadena, January, 31, 1989.
- [hayward89-1] Hayward V. and Kurtz R. Modeling of a parallel wrist with actuator redundancy. Research Report CIM-S9-4, Université McGill, MCRCIM, Montréal, January 1989.
- [hayward90] Hayward V. and Kurtz R. Modeling of a parallel wrist with actuator redundancy. In *ARK*, pages 1–13, Linz, September, 10-12, 1990.
- [hayward93] Hayward V. and others . Kinematic decoupling in mechanisms and application to a passive hand controller design. *J. of Robotic Systems*, 10(5):767–790, July 1993.
- [hayward93-1] Hayward V. Design of a hydraulic robot shoulder based on a combinatorial mechanism. In *ISER*, pages 297–309, Kyoto, September, 28-30, 1993.
- [hayward94] Hayward V. Design and multi-objective optimization of a linkage for haptic interface. In *ARK*, pages 359–368, Ljubljana, July, 4-6, 1994.
- [hayward95] Hayward V. Toward a seven axis haptic device. In *IROS*, pages 133–139, Pittsburgh, August 1995.
- [he-b2014] He B. and others . Workspace analysis of a novel underactuated robot wrist based on virtual prototyping. *The International Journal of Advanced Manufacturing Technology*, 72:531–541, 2014.
- [he-l2023] He L., Fang H., and Zhang D. Topological relation expression and verification of symmetrical parallel mechanism based on the evolution of chemical molecule. *Robotica*, 41:3584–3607, 2023.
- [he2020] He J. and others . Kinematic design of a serial-parallel hybrid finger mechanism actuated by twisted and coiled polymer. *Mechanism and Machine Theory*, 152, 2020.
- [hebsacker98] Hebsacker M. and Epfl A. Die auslegung des kinematik des hexaglide- Methodik für die auslegung paralleler werkzeugmaschinen. In *New machine concepts for handling and manufacturing devices on the basis of parallel structures*, pages 51–66, Braunschweig, November, 10-11, 1998.
- [heerah2002] Heerah I. and others . Workspace-based architecture selection of a 3-degree-of-freedom planar parallel manipulator. In *ASME Design Engineering Technical Conference*, Montréal, September 29- October 2, 2002.
- [heerah2003] Heerah I. and others . Architecture selection and singularity analysis of a three-degree-of-freedom planar parallel manipulator. *J. of Robotic Systems*, 37(4):355–374, August 2003.
- [heiran2017] Heiran F. and others . Kinematics and workspace analysis of a novel parallel mechanism with kinematic redundancy. In *5th International Conference on Control, Instrumentation, and Automation (ICCIA)*, 2017.
- [heisel98] Heisel U. and Hestermann J-O. Gelenkstab und gelenkeinheit-Grundelemente von maschinen und parallelkinematik. In *New machine concepts for handling and manufacturing devices on the basis of parallel structures*, pages 117–125, Braunschweig, November, 10-11, 1998.
- [heisel2002] Heisel U. and Maier W. Investigation of truss structures as light weight element for the use in parallel kinematic machines. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 715–728, Chemnitz, April, 23-25, 2002.

- [helinski90] Helinski A.L. Dynamic and kinematic study of a Stewart platform using Newton-Euler techniques. Research Report 13479, Tank Automotive Command, January 1990.
- [henein98] Henein S. and others . ORION: robot de haute précision à articulations flexibles. In *9ème Journées Jeunes Chercheurs en Robotique*, pages 30–34, Clermont-Fd, May, 11-12, 1998.
- [hennes2002] Hennes N. Ecospeed: an innovative machining concept for high performance 5-axis-machining of large structural component in aircraft engineering. In *2nd NCG Application Conf. on Parallel Kinematics Machine*, pages 763–774, Chemnitz, April, 23-25, 2002.
- [henninger2007] Henninger C. and Eberhard P. An investigation of pose-dependent regenerative chatter for a parallel kinematic milling machine. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [hernandez2008] Hernandez A. and others . Transitions in the velocity pattern of lower mobility parallel manipulators. *Mechanism and Machine Theory*, 43(6):738–753, 2008.
- [hernandez2012] Hernandez A. and others . Designing parallel manipulators: from specifications to a real prototype. *Industrial Robot*, 39(5):500–512, 2012.
- [hernandez2015] Hernandez A. and others . Design optimization of a cable-based parallel tracking system by using evolutionary algorithms. *Robotica*, 33(3):599–610, March 2015.
- [hernandezmartinez2008] Hernandez-Martinez E., Carbone G., and Lopez-Cajun C. Operation feature of Milli-CaTraSys. In *2nd European Conf. on Mechanism Science (Eucomes)*, Cassino, September, 17-20, 2008.
- [herpe2018] Herpe X. and others . On a simplified nonlinear analytical model for the characterisation and design optimisation of a compliant XY micro-motion stage. *Robotics and Computer-Integrated Manufacturing*, 49:66–76, 2018.
- [herrero2012] Herrero S. and others . Simplified kinetostatic model of the 3-RPS manipulator. In *4th European Conf. on Mechanism Science (Eucomes)*, pages 375–382, Santander, September, 19-21, 2012.
- [herrero2015] Herrero S. and others . Enhancing the useful workspace of a reconfigurable parallel manipulator by grasp point optimization. *Robotics and Computer-Integrated Manufacturing*, 31:51–60, February 2015.
- [herrero2018] Herrero S. and others . Analysis of the 2PRU–1PRS 3dof parallel manipulator: kinematics, singularities and dynamics. *Robotics and Computer-Integrated Manufacturing*, 51:63–72, 2018.
- [herrero2019] Herrero S. and others . Analytical procedure based on the matrix structural method for the analysis of the stiffness of the 2PRU–1PRS parallel manipulator. *Robotica*, 37:1401–1414, 2019.
- [hertel2002] Hertel A. Requirement for parallel kinematics for powertrain manufacturing in the automotive industry. In *2nd NCG Application Conf. on Parallel Kinematics Machine*, pages 753–761, Chemnitz, April, 23-25, 2002.
- [hertz93] Hertz R.B. and Hughes P.C. Forward kinematics of a 3 d.o.f. variable-geometry-truss manipulators. In J. Angeles P. Kovacs, G. Hommel, editor, *Computational Kinematics*, pages 241–250. Kluwer, 1993. **Keywords:** forward kinematics, 3 dof robot, truss, mechanical architecture.
- [hertz98] Hertz R.B. and Hughes P.C. Kinematic analysis of a general double-tripod parallel manipulator. *Mechanism and Machine Theory*, 33(6):683–696, August 1998.
- [herve91] Hervé J-M. and Sparacino F. Structural synthesis of parallel robots generating spatial translation. In *ICAR*, pages 808–813, Pise, June, 19-22, 1991.
- [herve91-1] Hervé J-M. Dispositif pour le déplacement en translation spatiale d’un élément dans l’espace, en particulier pour robot mécanique, January, 11, 1991. French Patent n° 9100286. **Keywords:** mechanical architecture, 3 dof robot, patent.
- [herve92] Hervé J.M. Group mathematics and parallel link mechanisms. In *IMACS/SICE Int. Symp. on Robotics, Mechatronics, and Manufacturing Systems*, pages 459–464, Kobe, September, 16-20, 1992.
- [herve92-1] Hervé J-M. and Sparacino F. Star, a new concept in robotics. In *ARK*, pages 176–183, Ferrare, September, 7-9, 1992.



- [herve95] Hervé J.M. Group mathematics and parallel link mechanisms. In *9th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 2079–2082, Milan, August 30- September 2, 1995.
- [herve2002] Hervé J.M. and Karouia M. The novel 3-RUU wrist with no idle pair. In *Workshop on Fundamental Issues and Future Research Directions for Parallel Mechanisms and Manipulators*, Québec, October, 3-4, 2002.
- [herve2003] Hervé J.M. The planar-spherical kinematic bond: implementation in parallel mechanisms. January, 24, 2003, <http://www.parallemic.org/Reviews/Review013.html>. **Keywords:** structural synthesis.
- [herve2004] Hervé J.M. Parallel mechanisms with pseudo-planar motion generators. In J. Lenarčič C. Galletti, editor, *ARK*, pages 431–440. Kluwer, 2004. **Keywords:** mechanical architecture, structural synthesis, design theory.
- [herve2009] Hervé J.M. Uncoupled actuation of pan-tilt wrists. *IEEE Trans. on Robotics*, 22(1):56–64, 2009.
- [hess-coelho2006] Hess-Coelho T.A. Topological synthesis of a parallel wrist manipulator. *ASME J. of Mechanical Design*, 128(1):230–235, January 2006.
- [hess-coelho2007] Hess-Coelho T.A. A redundant parallel spherical mechanism for robotic wrist applications. *ASME J. of Mechanical Design*, 129(8):891–895, August 2007.
- [hess-coelho2007-1] Hess-Coelho T.A. and Malvezzi F. Workspace optimization of 3 RSS+CP parallel mechanisms. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [hess-coelho2007-2] Hess-Coelho T.A. An alternative procedure for type synthesis of parallel mechanisms. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [hesselbach95] Hesselbach J. and Kerle H. Structurally adapted kinematic algorithms for parallel robots up to six degrees of freedom (dof). In *9th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 1935–1939, Milan, August 30- September 2, 1995.
- [hesselbach96] Hesselbach J., Kerle H., and Plitea N. On some aspects of parallel robots control. In *27th Int. Symp. on Industrial Robots (ISIR)*, pages 683–687, Milan, October, 6-8, 1996.
- [hesselbach98] Hesselbach J., Plitea N., Frindt M., and Kusiek A. A new parallel mechanism to use for cutting convex glass panels. In *ARK*, pages 165–174, Strobl, June 29- July 4, 1998.
- [hesselbach98-1] Hesselbach J. and Kusiek A. Steuerung eines parallelroboters für die mikromontage. In *New machine concepts for handling and manufacturing devices on the basis of parallel structures*, pages 127–144, Braunschweig, November, 10-11, 1998.
- [hesselbach98-2] Hesselbach J. and others . Manipulator for parallel structure and driving guide element, September, 17, 1998. German Patent n° DE19710171. **Keywords:** mechanical architecture, 6 dof robot, patent.
- [hesselbach99] Hesselbach J. and Frindt M. Kinematic analysis of a class of parallel pick and place mechanisms using VDI 2729. In *10th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 566–571, Oulu, June, 20-24, 1999.
- [hesselbach2000] Hesselbach J. and others . Platform for machine tool consists of two parallel platforms linked by five articulated levers providing five degrees of freedom for machine tool spindle, March, 23, 2000. German Patent n° DE19840886. **Keywords:** mechanical architecture, 5 dof robot, patent.
- [hesselbach2001] Hesselbach J. and others . A parallel robot with Spread-band elements. In *32th Int. Symp. on Robotics*, pages 1731–1736, Seoul, April, 19-21, 2001.
- [hesselbach2002] Hesselbach J. and others . Kinematic and dynamic design of parallel robot. In *1st Int. Colloquium, Collaborative Research Centre 562*, pages 31–46, Braunschweig, May, 29-30, 2002.
- [hesselbach2002-1] Hesselbach J. and others . Dynamic modelling of plane parallel robot for control purposes. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 391–409, Chemnitz, April, 23-25, 2002.
- [hesselbach2002-2] Hesselbach J. and others . A new hybrid six-axis-machine for efficient cutting convex glass panels. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 655–669, Chemnitz, April, 23-25, 2002.

- [hesselbach2002-3] Hesselbach J. and others . Workspace optimized parallel robot for placing tools. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 697–713, Chemnitz, April, 23-25, 2002.
- [hesselbach2002-4] Hesselbach J. and others . Connecting assembly modes for workspace enlargement. In *ARK*, pages 347–356, Caldes de Malavalla, June 29- July 2, 2002.
- [hesselbach2003] Hesselbach J. and others . Compliant parallel robots with pseudo-elastic flexure hinges. In *Int. Precision Assembly Seminar IPAS'2003*, pages 41–48, Bad Hofgastein, March, 17-19, 2003.
- [hesselbach2003-1] Hesselbach J. and others . A micro-assembly-station based on a hybrid 4-dof robot. In *Int. Precision Assembly Seminar IPAS'2003*, pages 55–60, Bad Hofgastein, March, 17-19, 2003.
- [hesselbach2003-2] Hesselbach J. and others . A generic formulation of the dynamics of plane parallel robots for real-time applications. In *RAAD*, Cassino, May, 7-10, 2003.
- [hesselbach2003-3] Hesselbach J. and others . Workspace enlargement for parallel kinematic machines. *Annals of the CIRP*, 52(1):343–346, 2003.
- [hesselbach2004] Hesselbach J. and others . Passive joint-sensor applications for parallel robots. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Sendai, September 28- October 2, 2004.
- [hesselbach2004-1] Hesselbach J. and others . Performance of pseudo-elastic flexure hinges in parallel robots for micro-assembly tasks. *Annals of the CIRP*, 53(1):329–332, 2004.
- [hesselbach2005] Hesselbach J. and others . Parallel robot specific control functionalities. In *2nd Int. Colloquium, Collaborative Research Centre 562*, pages 93–108, Braunschweig, May, 10-11, 2005.
- [hesselbach2005-1] Hesselbach J. and others . Singularity prediction for parallel robots for improvement of sensor-integrated assembly. *Annals of the CIRP*, 54(1):349–352, 2005.
- [heuer2003] Heuer K. and others . Open architecture robust control based on Matlab/Simulink and a dSPACE real time system. In *Proc. of the SPIE, Intelligent Manufacturing*, pages 1–9, October, 29-30, 2003.
- [heyden2002] Heyden T., Maier T., and Woernle C. Trajectory tracking control for a cable suspension manipulator. In *ARK*, pages 125–134, Caldes de Malavalla, June 29- July 2, 2002.
- [heyden2006] Heyden T. and Woernle C. Dynamics and flatness-based control of a kinematically undetermined cable suspension manipulator. *Multibody System Dynamics*, 16:155–177, 2006.
- [higuchi88] Higuchi T., Ming A., and Jiang-Yu J. Application of multi-dimensional wire crane in construction. In *5th Int. Symp. on Robotics in Construction*, pages 661–668, Tokyo, June, 6-8, 1988.
- [hiller2005] Hiller M. and others . Analysis, realization and application of the tendon-based parallel robot SEGESTA. In *2nd Int. Colloquium, Collaborative Research Centre 562*, pages 185–202, Braunschweig, May, 10-11, 2005.
- [hiller2005-1] Hiller M. and others . Design, analysis and realization of tendon-based parallel manipulators. *Mechanism and Machine Theory*, 40(4):429–445, April 2005.
- [hirano2014] Hirano J. and others . Development of Delta robot driven by pneumatical artificial muscles. In *IEEE/ASME Int. Conf. on Advanced Intelligent Mechatronics*, pages 1400–1405, Besancon, July, 8-11, 2014.
- [hirose-t2012] Hirose T. and others . Development of hair washing robot with scrubbing fingers. In *IEEE Int. Conf. on Robotics and Automation*, pages 1970–1979, Saint Paul, May, 14-18, 2012.
- [hirose99] Hirose S. and others . Development of the light-legged dinosaur TITUS. *Advanced Robotics*, 13(3):237–238, 1999.
- [ho2014] KHo W.Y. and others . Haptic interaction with a cable-driven parallel robot with admittance control. In *2nd Int. Conf. on cable-driven parallel robots (CableCon)*, Duisburg, August, 24-27, 2014.
- [hoevenaars2017] Hoevenaars A.G.L. and others . A systematic approach for the jacobian analysis of parallel manipulators with two end-effectors. *Mechanism and Machine Theory*, 109:171–194, 2017.
- [hoevenaars2020] Hoevenaars A.G.L., Krut S., and Herder J.L. Jacobian-based natural frequency analysis of parallel manipulators. *Mechanism and Machine Theory*, 148, 2020.

- [hoffman79] Hoffman R. Dynamics and control of a flight simulator motion system. In *Canadian Conf. on Automatic Control*, pages 1–10, Montréal, May, 23-25, 1979.
- [hoffman79-1] Hoffman R. and McKinnon M.G. Vibrational modes of an aircraft simulator motion system. In *5th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 603–606, Montréal, July 1979.
- [hoffman2020] Hoffman R. and Asada H.H. Precision assembly of heavy objects suspended with multiple cables from a crane. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Las Vegas, October, 25-29, 2020.
- [homma94] Homma K. and Arai T. Upper limb motion assist system with parallel mechanisms. In *2nd Japan-France Congress on Mechatronics*, pages 388–391, Takamatsu, November, 1-3, 1994.
- [homma2003] Homma K. and others . A wire-driven leg rehabilitation system: development of a 4-dof experimental system. In *IEEE/ASME Int. Conf. on Advanced Intelligent Mechatronics*, pages 908–913, Kobe, July, 20-24, 2003.
- [honegger97] Honegger M., Codourey A., and Burdet E. Adaptive control of the Hexaglide, a 6 dof parallel manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 543–548, Albuquerque, April, 21-28, 1997.
- [honegger2000] Honegger M., Brega R., and Schweitzer G. Application of a nonlinear adaptive controller to a 6 dof parallel manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 1930–1935, San Francisco, April, 24-28, 2000.
- [hong-j2009] Hong J. and Yamamoto M. A calculation method of the reaction force and moment for a Delta-type parallel link robot with a fixed frame. *Robotica*, 27(4):579–587, July 2009.
- [hong-ks2003] Hong K-S. Kinematic optimal design of a new parallel-type rolling mill: paramill. *Advanced Robotics*, 17(9):837–862, 2003.
- [hong-zhou2010] Hong-Zhou J., Jing-Feng H., and Zhi-Zhong T. Characteristics analysis of joint space inverse mass matrix for the optimal design of a 6-dof parallel manipulator. *Mechanism and Machine Theory*, 45(5):722–739, May 2010.
- [hong2000] Hong K.S. and Kim J-G. Manipulability analysis of a parallel machine tool: application to optimal link length design. *J. of Robotic Systems*, 17(8):403–415, 2000.
- [hongrui94] Hongrui W. Variable structure model reference adaptive control of robot. In *2nd Asian Conf. on Robotics and its application*, pages 467–470, Beijing, October, 13-15, 1994.
- [hongrui94-1] Hongrui W. and others . Trajectory control of parallel robot based on predictive control theory. In *2nd Asian Conf. on Robotics and its application*, pages 455–459, Beijing, October, 13-15, 1994.
- [hopkins2002] Hopkins B.R. and Williams II R.L. Kinematics, design and control of the 6-PSU platform. *Industrial Robot*, 29(5):443–451, 2002.
- [hopkins2002-1] Hopkins B.R. and Williams II R.L. Modified 6 – PSU platform. In *ASME Design Engineering Technical Conference*, Montréal, September 29- October 2, 2002.
- [horner94] Horner G.C. Variable geometry truss manipulator arm and smart materials research at the NASA Langley research center. In *5th Int. Conf. on Adaptive Structures*, pages 450–457, Sendai, December, 5-7, 1994.
- [horoub2013] Horoub M.M., Hassan M., and Hawwa A. Workspace analysis of a floating cable-driven platform for marine applications. In *Int. Conf. on Mechanical Engineering and Mechatronics*, Toronto, August, 8-10, 2013.
- [horoub2018] Horoub M.M., Hassan M., and Hawwa A. Workspace analysis of a Gough-Stewart type cable marine platform subjected to harmonic water waves. *Mechanism and Machine Theory*, 120:314–325, 2018.
- [horoub2018-1] Horoub M.M., Hassan M., and Hawwa A. Influence of cables layout on the dynamic workspace of a six-dof parallel marine manipulator. *Mechanism and Machine Theory*, 129:191–201, 2018.
- [horoub2020] Horoub M.M. Dynamic analysis of a tension leg platforms (TLPs) inspired by parallel robotic manipulators. *IEEE Access*, 2020.

- [horoub2020-1] Horoub M.M. Dynamic investigation of a cable-driven marine robot (CDMR) with different cables' characteristics. In *Int. Conf. on Electrical, Communication, and Computer Engineering (ICECCE)*, Toronto, August, 8-10, 2013.
- [hosseini2011] Hosseini M.A., Daniali H-R. M., and Taghirad H.D. Dexterous workspace optimization of a Tricept parallel manipulator. *Advanced Robotics*, 25(13-14):1697–1712, 2011.
- [hosseini2015] Hosseini M.A. and Daniali H-M. Cartesian workspace optimisation of Tricept parallel manipulator with machining application. *Robotica*, 33(9):1948–1957, November 2015.
- [hosseini2015-1] Hosseini M.A. Kinematic synthesis of a novel rapid spherical CRS/PU parallel manipulator. *Mechanism and Machine Theory*, 93:26–38, November 2015.
- [hou2009] Hou Y. and others . Performance analysis and comprehensive index optimization of a new configuration of Stewart six-component force sensor. *Mechanism and Machine Theory*, 44(2):359–368, February 2009.
- [hovland2007] Hovland G. and others . Benchmark of the 3-dof Gantry-Tau parallel kinematic machine. In *IEEE Int. Conf. on Robotics and Automation*, pages 535–542, Roma, April, 10-14, 2007.
- [hu-b2010] Hu B., Lu Y., and Yu J. Dynamics analysis of some limited-degree-of-freedom parallel manipulators with n UPS active legs and a passive constraining leg. *Advanced Robotics*, 24(7):1003–1016, 2010.
- [hu-b2011] Hu B. and Lu Y. Solving stiffness and deformation of a 3-UPU parallel manipulator with one translation and two rotations. *Robotica*, 29(6):815–822, October 2011.
- [hu-b2011-1] Hu B. and others . Analysis of stiffness and elastic deformation of a 2(SP+SPR+SPU) serial-parallel manipulator. *Robotics and Computer-Integrated Manufacturing*, 27(2):418–425, April 2011.
- [hu-b2011-2] Hu B. and others . Solving stiffness and elastic deformation of two limited degree-of-freedom parallel manipulator with a constrained leg based on active constrained wrench. *Advanced Robotics*, 25(9-10):1331–1348, 2011.
- [hu-b2014] Hu B. Formulation of unified jacobian for serial-parallel manipulators. *Robotics and Computer-Integrated Manufacturing*, 30(5):460–467, October 2014.
- [hu-b2014-1] Hu B. Complete kinematics of a serial–parallel manipulator formed by two Tricept parallel manipulators connected in serials. *Nonlinear Dynamics*, 78:2685–2698, 2014.
- [hu-b2016] Hu B. and Yu Y., J. and Lu. Inverse dynamics modeling of a (3-UPU)+(3-UPS+S) serial-parallel manipulator. *Robotica*, 34:687–702, 2016.
- [hu-b2016-1] Hu B. Kinematically identical manipulators for the Exechon parallel manipulator and their comparison study. *Mechanism and Machine Theory*, 103:117–137, 2016.
- [hu-b2020] Hu B. Reconsideration of terminal constraint/mobility and kinematics of 5-dof hybrid manipulators formed by one 2R1T PM and one RR SM. *Mechanism and Machine Theory*, 149, 2020.
- [hu-h2010] Hu H. and others . The analysis of resolution for cable-driven haptic device. In *IEEE International Conference on Robotics and Biomimetics*, Tianjin, Decembre October, 14-18, 2010.
- [hu-y2018] Hu Y. and others . Kinematic calibration of a 6-dof parallel manipulator based on identifiable parameters separation (IPS). *Mechanism and Machine Theory*, 126:61–78, 2018.
- [hu99] Hu M. and others . The 3-dof in-parallel robot and its application for billet snagging. In *IFAC World Congress*, Beijing, 1999.
- [huang-c-2002] Huang C., Hung W-H., and Kao I. New conservative stiffness mapping for the Stewart-Gough platform. In *IEEE Int. Conf. on Robotics and Automation*, pages 823–828, Washington, May, 11-15, 2002.
- [huang-g2018] Huang G. and others . Kinematic analysis and multi-objective optimization of a new reconfigurable parallel mechanism with high stiffnes. *Robotica*, 36:187–203, 2018.
- [huang-jy-2002] Huang J-Y. and Gau C-Y. A PC cluster high-fidelity mobile crane simulator. *Tamkang Journal of Science and Engineering*, 5(1):7–20, 2002.

- [huang-l-99] Huang L. and Notash L. Failure analysis of parallel manipulators. In *10th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 1027–1032, Oulu, June, 20–24, 1999.
- [huang-s-98] Huang S. and Schimmels J.M. The bounds and realization of spatial stiffnesses achieved with simple springs connected in parallel. *IEEE Trans. on Robotics and Automation*, 14(3):466–474, June 1998.
- [huang-s-2018] Huang S. and Schimmels J.M. Geometric construction-based realization of spatial elastic behaviors in parallel and serial manipulators. *IEEE Trans. on Robotics*, 34(3), June 2018.
- [huang-t-99] Huang T., Wang J., and Whitehouse D.J. Closed form solution of hexapod-based virtual axis machine tools. *ASME J. of Mechanical Design*, 121(1):26–31, March 1999.
- [huang-t-2000] Huang T., Jiang B., and Whitehouse D.J. Determination of the carriage stroke of 6-PSS parallel manipulators having the specific orientation capability in a prescribed workspace. In *IEEE Int. Conf. on Robotics and Automation*, pages 2382–2385, San Francisco, April, 24–28, 2000.
- [huang-t-2001] Huang T. and others . Stiffness estimation of a Tripod-based parallel kinematic machine. In *IEEE Int. Conf. on Robotics and Automation*, pages 3280–3285, Seoul, May, 23–25, 2001.
- [huang-t-2002] Huang T., Zhao X., and Whitehouse D.J. Stiffness estimation of a Tripod-based parallel kinematic machine. *IEEE Trans. on Robotics and Automation*, 18(1):50–58, February 2002.
- [huang-t-2002-1] Huang T. and others . A time/cost effective approach for parameter identification of 6-dof parallel kinematic machines using a minimum set of pose error measurements. In *Workshop on Fundamental Issues and Future Research Directions for Parallel Mechanisms and Manipulators*, Québec, October, 3–4, 2002.
- [huang-t-2003] Huang T. and others . Identifiability of geometric parameters of 6-dof PKM systems using a minimum set of pose error-data. In *IEEE Int. Conf. on Robotics and Automation*, pages 1863–1868, Taipei, September, 14–19, 2003.
- [huang-t-2004] Huang T. and others . Optimal kinematic design of 2-dof parallel manipulators with well-shaped workspace bounded by a specific conditioning index. *IEEE Trans. on Robotics and Automation*, 20(3):538–543, June 2004.
- [huang-t-2004-1] Huang T. and others . Conceptual design and dimensional synthesis of a novel 2-DOF translational parallel robot for pick-and-place operations. *ASME J. of Mechanical Design*, 126(3):449–455, May 2004.
- [huang-t-2005] Huang T. and others . A general and novel approach for parameter identification of 6-dof parallel kinematic machines. *Mechanism and Machine Theory*, 40(2):219–239, February 2005.
- [huang-t-2005-1] Huang T. and others . A method for estimating servomotor parameters of a parallel robot for rapid pick-and-place operations. *ASME J. of Mechanical Design*, 127(4):596–601, July 2005.
- [huang-t-2007] Huang T. and others . Time minimum trajectory planning of a 2-dof translation parallel robot for pick-and-place operations. *Annals of the CIRP*, 56/1/2007:365–368, 2007.
- [huang-t-2019] Huang T. and others . A simple and visually orientated approach for type synthesis of overconstrained 1T2R parallel mechanisms. *Robotica*, 37:1161–1173, 2019.
- [huang-t-99-1] Huang T. and others . Determination of closed form solution to the 2-D orientation workspace of Gough-Stewart parallel manipulators. *IEEE Trans. on Robotics and Automation*, 15(6):1121–1125, December 1999.
- [huang-x-2010] Huang X., Liao Q., and Wei S. Closed-form forward kinematics for a symmetrical 6-6 Stewart platform using algebraic elimination. *Mechanism and Machine Theory*, 45(2):327–334, February 2010.
- [huang-y-2023] Huang Y. and others . Kinematic and dynamic analysis of a 4-DOF over-constraint parallel driving mechanism with planar sub-closed chains. *Robotica*, 41, October 2023.
- [huang-z96] Huang Z., Tao W.S., and Fang Y.F. Study on the kinematics characteristics of 3 DOF in-parallel actuated platform mechanisms. *Mechanism and Machine Theory*, 31(8):999–1007, November 1996.
- [huang-z96-1] Huang Z. and Fang Y.F. Kinematic characteristics analysis of 3 DOF in-parallel pyramid mechanisms. *Mechanism and Machine Theory*, 31(8):1009–1018, November 1996.

- [huang-z99] Huang Z. and others . Kinematic principle and geometrical condition of general-linear-complex special configuration of parallel manipulators. *Mechanism and Machine Theory*, 34(8):1171–1186, November 1999.
- [huang-z99-1] Huang Z. and Yao Y.L. A new closed-form kinematics of the generalized 3-dof spherical parallel manipulator. *Robotica*, 17(5):475–485, September 1999.
- [huang-z2001] Huang Z. and Wang J. Identification of principal screws of 3-DOF parallel manipulators by quadric degeneration. *Mechanism and Machine Theory*, 36(8):893–911, August 2001.
- [huang-z2002] Huang Z. and Li Q.C. Some novel minor-mobility parallel mechanisms. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 895–905, Chemnitz, April, 23-25, 2002.
- [huang-z2002-2] Huang Z., Wang J., and Fang Y.F. Analysis of instantaneous motions of deficient-rank 3-RPS parallel manipulators. *Mechanism and Machine Theory*, 37(2):229–240, February 2002.
- [huang-z2002-1] Huang Z. and Li Q.C. General methodology for type synthesis of symmetrical lower-mobility parallel manipulators and several novel manipulators. *Int. J. of Robotics Research*, 21(2):131–145, February 2002.
- [huang-z2002-3] Huang Z. and Chen L.H. Singularity principle and distribution of 6-3 Stewart parallel manipulator. In *ASME Design Engineering Technical Conference*, Montréal, September 29- October 2, 2002.
- [huang-z2002-4] Huang Z. and Li Q.C. Some novel lower-mobility parallel mechanisms. In *ASME Design Engineering Technical Conference*, Montréal, September 29- October 2, 2002.
- [huang-z2002-5] Huang Z. and Li Q.C. Construction and kinematics properties of 3-dof parallel mechanisms. In *ASME Design Engineering Technical Conference*, Montréal, September 29- October 2, 2002.
- [huang-z2003] Huang Z. and Li Q.C. Type synthesis of symmetrical lower mobility parallel mechanisms using the constraint synthesis method. *Int. J. of Robotics Research*, 22(1):59–79, January 2003.
- [huang-z2004] Huang Z. The kinematics and type synthesis of lower-mobility parallel robot manipulators. In *11th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 65–76, Tianjin, April, 1-4, 2004.
- [huang-z2004-1] Huang Z., Li S.H., and Zuo R.G. Feasible instantaneous motions and kinematic characteristics of a special 3-DOF 3-UPU parallel manipulator. *Mechanism and Machine Theory*, 39(9):959–970, 2004.
- [huang-z2005] Huang Z. and Cao Y. Property identification of the singularity of Gough-Stewart manipulators. *Int. J. of Robotics Research*, 24(8):675–685, August 2005.
- [huang-z2006] Huang Z. and others . Structure and property of the singularity loci of the 3-6 Stewart-Gough platform for general orientations. *Robotica*, 24(1):75–84, January 2006.
- [huang-z2008] Huang Z., Wang J., and Li S.H. *Parallel manipulators, New Developments*, chapter Principal screws and full-scale feasible instantaneous motions of some 3-dof parallel manipulators, pages 349–372. ITECH, April 2008. **Keywords:** mobility,3 dof robot,jacobian.
- [huang92] Huang M.Z. A note on kinematics of in-parallel actuated platform manipulators. In *2nd National Applied Mechanisms and Robotics Conf.*, pages IXC.6–1/IXC.6–4, Cincinnati, November, 3-6, 1992.
- [huang93] Huang M.Z., Ling S-H., and Sheng Y. A study of velocity kinematics for hybrid manipulators with parallel-series configurations. In *IEEE Int. Conf. on Robotics and Automation*, pages 456–461, Atlanta, May, 2-6, 1993.
- [huang94] Huang M.Z. and Ling S-H. Kinematics of a class of hybrid robotic mechanisms with parallel and series module. In *IEEE Int. Conf. on Robotics and Automation*, pages 2180–2185, San Diego, May, 8-13, 1994.
- [hubert2008] Hubert J. and Merlet J-P. Singularity analysis through static analysis. In *ARK*, pages 13–20, Batz/mer, June, 23-26, 2008.
- [hubert2009] Hubert J. and Merlet J-P. Static of parallel manipulators and closeness to singularity. *J. of Mechanisms and Robotics*, 1(1), February 2009.
- [hubert2009-phd] Hubert J. *Singularités et manipulateurs parallèles*. Ph.D. Thesis, Université de Nice, Nice, September, 28, 2009. **Keywords:** singularity.

- [huda2007] Huda S. and Takeda Y. Dimensional synthesis of 3-URU pure rotational parallel mechanism with respect to singularity and workspace. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [hudgens88] Hudgens J.C. and Tesar D. A fully-parallel six degree-of-freedom micromanipulator: kinematic analysis and dynamic control. In *ASME Proc. of the 20th Biennial Mechanisms Conf.*, pages 29–37, Kissimmee, Orlando, September, 25-27, 1988.
- [hufnagel2012] Hufnagle T., Reichert C., and Schramm D. Centralized non-linear model predictive control of a redundantly actuated parallel manipulator. In *4th European Conf. on Mechanism Science (Eucomes)*, pages 621–629, Santander, September, 19-21, 2012.
- [hui-l-2015] Hui L. A giant sagging-cable-driven parallel robot of FAST telescope: its tension-feasible workspace of orientation and orientation planning. In *14th IFToMM World Congress on the Theory of Machines and Mechanisms*, Taipei, October, 27-30, 2015.
- [hui95] Hui R. and others . Mechanisms for haptic feedback. In *IEEE Int. Conf. on Robotics and Automation*, pages 2138–2143, Nagoya, May, 25-27, 1995.
- [hunt-j-2007] Hunt J.A. Robot kinematics and the Gantry-Tau parallel machine. *Industrial Robot*, 34(5):362–367, 2007.
- [hunt82] Hunt K.H. Geometry of robotics devices. *Mechanical Engineering Transactions*, 7(4):213–220, 1982.
- [hunt82-1] Hunt K.H. Structural kinematics of in parallel actuated robot arms. In *Design, and Production Engineering Technical Conference*, Washington, September, 12-15, 1982.
- [hunt83] Hunt K.H. Structural kinematics of in parallel actuated robot arms. *J. of Mechanisms, Transmissions and Automation in Design*, 105(4):705–712, March 1983.
- [hunt93] Hunt K.H. and Primrose E.J.F. Assembly configurations of some in-parallel actuated manipulators. *Mechanism and Machine Theory*, 28(1):31–42, January 1993.
- [hunt98] Hunt K.H. and McAree P.R. The octahedral manipulator: geometry and mobility. *Int. J. of Robotics Research*, 17(8):868–885, 1998.
- [huo-t2021] Huo T. and others . A family of novel rcm rotational compliant mechanisms based on parasitic motion compensation. *Mechanism and Machine Theory*, 156, 2021.
- [huo-x2021] Huo X. and others . Dynamic identification of a tracking parallel mechanism. *Mechanism and Machine Theory*, 155, 2021.
- [huo2017] Huo X., T. Sun., and Song Y. A geometric algebra approach to determine motion/constraint, mobility and singularity of parallel mechanism. *Mechanism and Machine Theory*, 116:273–293, 2017.
- [huo2018] Huo X. and others . Parametrized inverse kinematics of parallel mechanism based on CGA. In *EUCOMES*, pages 340–346, Aachen, September, 4-6, 2018.
- [hur2020] Hur S-M. and others . Design of a parallel haptic device with gravity compensation by using its system weight. In *IEEE Int. Conf. on Robotics and Automation*, Paris, May 31- August 31, 2020.
- [huryn2010] T.P. Huryn and others . Investigating human balance using a robotic motion platform. In *IEEE Int. Conf. on Robotics and Automation*, pages 5090–5095, Anchorage, May, 3-8, 2010.
- [husain92] Husain M. and Waldron K.J. Position kinematics of a mixed mechanism. In *22nd Biennial Mechanisms Conf.*, volume DE-45, pages 41–48, Scottsdale, September, 13-16, 1992.
- [husain92-1] Husain M. and Waldron K.J. Direct position kinematics of the 3-1-1-1 Stewart platform. In *22nd Biennial Mechanisms Conf.*, volume DE-45, pages 89–97, Scottsdale, September, 13-16, 1992.
- [husain94] Husain M. and Waldron K.J. Direct position kinematics of the 3-1-1-1 Stewart platform. *ASME J. of Mechanical Design*, 116(4):1102–1108, December 1994.

- [hussein2018] Hussein H., Gouttefarde M., and Pierrot F. Static modeling of sagging cables with flexural rigidity and shear forces. In *ARK*, Bologna, July, 1-5, 2018.
- [hussein2018-1] Hussein H., Santos J.C., and Gouttefarde M. Geometry optimization of a large scale CDPR operating on a building facade. In *IROS*, Madrid, 2018.
- [hussein2021] Hussein H. and others . Smallest maximum cable tension determination for cable-driven parallel robots. *IEEE Trans. on Robotics*, 37(4), 2021.
- [husty94] Husty M.L. and Zsombor-Murray P. A special type of singular Stewart-Gough platform. In *ARK*, pages 449–458, Ljubljana, July, 4-6, 1994.
- [husty94-1] Husty M.L. An algorithm for solving the direct kinematic of Stewart-Gough-type platforms. Research Report TR-CIM-94-7, Université McGill, Montréal, June, 30, 1994.
- [husty95] Husty M.L. Kinematics mapping of planar three-legged platforms. In *15th Canadian Conf. on Applied Mechanics*, pages 876–877, Victoria, May 28- June 1, 1995.
- [husty96] Husty M.L. On the workspace of planar three-legged platforms. In *World Automation Congress*, volume 3, pages 339–344, Montpellier, May, 28-30, 1996.
- [husty96-1] Husty M.L. An algorithm for solving the direct kinematic of Stewart-Gough-type platforms. *Mechanism and Machine Theory*, 31(4):365–380, May 1996.
- [husty2000] Husty M.L. and Karger A. Self-motions of Griffis-Duffy type parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 7–12, San Francisco, April, 24-28, 2000.
- [husty2000-1] Husty M.L. and Karger A. Architecture singular parallel manipulators and their self-motions. In *ARK*, pages 355–364, Piran, June, 25-29, 2000.
- [husty2001] Husty M.L. and Eberharter J. Kinematic analysis of the Hexapod telescope. In F.C. Park C.C. Iurascu, editor, *Computational Kinematics*, pages 269–278. EJCK, May, 20-22, 2001. **Keywords:** forward kinematics, singularity.
- [husty2002] Husty M., Mielczarek S., and Hiller M. Redundant spatial Stewart-Gough platform with a maximal forward kinematic solution set. In *ARK*, pages 147–154, Caldes de Malavalla, June 29- July 2, 2002.
- [husty2009] Husty M. Non-singular assembly mode change in 3-RPR parallel manipulators. In *Computational Kinematics*, pages 1–10, Duisburg, May, 6-8, 2009.
- [husty2012] Husty M. and others . Self-motions of 3-RPS manipulators. In *4th European Conf. on Mechanism Science (Eucomes)*, pages 121–130, Santander, September, 19-21, 2012.
- [husty2013] Husty M. and Zsombor-Murray P. Geometric contribution to the analysis of 2-2 wire driven cranes. In *Int. Conf. on Interdisciplinary Applications of Kinematics*, pages 1–8, Lima, September, 9-11, 2013.
- [husty2017] Husty M., Schadlbauer J., and Zsombor-Murray P. A new approach to the direct geometrico-static problem of cable suspended robots using kinematic mapping. In *3rd Int. Conf. on cable-driven parallel robots (CableCon)*, Québec, 2017.
- [husty2019] Husty M. and others . An algebraic parameterization approach for parallel robots analysis. *Mechanism and Machine Theory*, 140, 2019.
- [huynh-bp2020] Huynh B-P. and Kuo Y-L. Dynamic filtered path tracking control for a 3RRR robot using optimal recursive path planning and vision-based pose estimation. *IEEE Access*, 2020.
- [huynh-bp2020-1] Huynh B-P., Wu C-W., and Kuo Y-L. Force/position hybrid control for a Hexa robot using gradient descent iterative learning control algorithm. *IEEE Access*, 2020.
- [huynh97] Huynh P. and Arai T. Maximum velocity analysis of parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 3268–3273, Albuquerque, April, 21-28, 1997.
- [huynh2001] Huynh P. Kinematic performance comparison of linear type parallel mechanisms. Application to the design and control of a hexaslide. In *5th Int. Conf. on Mechatronics Technology, ICMT2001*, Singapore, June, 6-8, 2001.



- [husty2001-1] Husty M.L., Mioelczarek S., and Hiller M. Constructing an overconstrained planar 4-RPR manipulator with maximal forward kinematics solution set. In *RAAD*, Vienna, 2001.
- [huynh2003] Huynh P. and Hervé J.M. Equivalent kinematic chains with planar-spherical bonds. Application to the development of a 3 dof 3-RPS parallel mechanism. In *RAAD*, Cassino, May, 7-10, 2003.
- [huynh2005] Huynh P. and Hervé J.M. Equivalent kinematic chains of three degree-of-freedom tripod mechanisms with planar-spherical bonds. *ASME J. of Mechanical Design*, 127(1):95–102, January 2005.
- [hwang-g-2008] Hwang G. and Hashimoto H. *Parallel manipulators, New Developments*, chapter Multiscale manipulations with multiple parallel mechanism manipulators, pages 331–348. ITECH, April 2008. **Keywords:** haptic device.
- [hwang-m2009] Hwang M.J. and others . Kinematic calibration of a parallel robot for small animal biopsies. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, St Louis, October, 11-15, 2009.
- [hwang-sw-2020] Hwang S. W. and others . Oscillation reduction and frequency analysis of under-constrained cable-driven parallel robot with three cables. *Robotica*, 38:375–395, 2020.
- [hwang-yk-2007] Hwang Y-K. and others . The optimum design of a 6-dof parallel manipulator with large orientation workspace. In *IEEE Int. Conf. on Robotics and Automation*, pages 163–168, Roma, April, 10-14, 2007.
- [hwang2003] Hwang T-S., Lin C-L., and Tsai R-C. Analysis and design for a parallel manipulator using linear motors. *Int. J. of Robotics and Automation*, 18(3):97–109, 2003.
- [ibarreche2012] Ibarreche J.I. and others . Structural synthesis of the families of parallel manipulators with 3 degrees of freedom. In *RoManSy*, Paris, June, 12-15, 2012.
- [ibarreche2017] Ibarreche J.I. and others . Multioperation capacity of parallel manipulators basing on generic kinematic chain approach. *Mechanism and Machine Theory*, 116:234–247, 2017.
- [ibrahim2006] Ibrahim O. *Contribution à la modélisation des robots parallèles et des robots hybrides*. Ph.D. Thesis, Université de Nantes, Nantes, October, 30, 2006. **Keywords:** dynamics.
- [ibrahim2007] Ibrahim O. and Khalil W. Kinematic and dynamic modeling of the 3-RPS parallel manipulator. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [ibrayev2002] Ibrayev S.M. and Nutpulla K.J. Approximate synthesis of planar cartesian manipulators with parallel structures. *Mechanism and Machine Theory*, 37(8):877–894, August 2002.
- [ida2017] Ida E. and others . Rest-to-rest trajectory planning for planar underactuated cable-driven parallel robots. In *3rd Int. Conf. on cable-driven parallel robots (CableCon)*, Québec, 2017.
- [ida2019] Ida E., Merlet J-P., and Carricato M. Automatic self-calibration of suspended under-actuated cable-driven parallel robot using incremental measurements. In *4th Int. Conf. on cable-driven parallel robots (CableCon)*, Cracow, June 30- July 4, 2019.
- [ida2019-1] Ida E., Bruckmann T., and Carricato M. Rest-to-rest trajectory planning for underactuated cable-driven parallel robots. *IEEE Trans. on Robotics*, 35(6), 2019.
- [ida2020] Ida E., Marian D., and Carricato M. A deployable cable-driven parallel robot with large rotational capabilities for laser-scanning applications. *IEEE Robotics and Automation Letters*, 2020.
- [ida2022] Ida E., Briot S., and Carricato M. Identification of the inertial parameters of underactuated cable-driven parallel robots. *Mechanism and Machine Theory*, 2022.
- [ider2004] Ider S.K. Actuation of parallel manipulators in the presence of drive singularities. In *11th Int. Conf. on Machine Design and Production*, Ankara, October, 13-15, 2004.
- [ider2005] Ider S.K. Inverse dynamics of parallel manipulators in the presence of drive singularities. *Mechanism and Machine Theory*, 40(1):33–34, January 2005.
- [ider2008] Ider S.K. *Parallel manipulators, New Developments*, chapter Singularity robust inverse dynamics of parallel manipulators, pages 373–392. ITECH, April 2008. **Keywords:** singularity.

- [ider2009] Ider S.K. and Korkmaz O. Trajectory tracking control of parallel robots in the presence of joint drive flexibility. *Journal of Sound and Vibration*, 319(1-2):77–90, February 2009.
- [idle97] Idle M.K. and others . Use of a zero-gravity suspension system for testing a vibration isolation system. In *17th Aerospace testing Seminar*, pages 79–84, Manhattan Beach, October, 14-16, 1997.
- [ilul2010] Ilul T., Pisla D., and Stoica A. Kinematics and design of a simple 2-dof parallel mechanism used for orientation. In *3rd European Conf. on Mechanism Science (Eucomes)*, Cluj-Napoca, September, 14-17, 2010.
- [in2007] In W., Bae S.J., and Kim J. Analysis of a new planar 3-dof parallel manipulator with two PPR chains. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [in2008] In W. and others . Design of a planar-type high speed parallel mechanism positioning platform with the capability of 180 degrees orientation. *Annals of the CIRP*, 57:421–424, 2008.
- [ingram2013] Ingram D. and others . A minimal set of coordinates for describing humanoid shoulder motion. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 5537–5544, Tokyo, November, 3-7, 2013.
- [ingram2016] Ingram D. and others . Modelling of the human shoulder as a parallel mechanism without constraints. *Mechanism and Machine Theory*, 100, 2016.
- [innocenti90] Innocenti C. and Parenti-Castelli V. Direct position analysis of the Stewart platform mechanism. *Mechanism and Machine Theory*, 25(6):611–621, 1990.
- [innocenti91] Innocenti C. and Parenti-Castelli V. Direct kinematics of the 6-4 fully parallel manipulator with position and orientation uncoupled. In *European Robotics and Intelligent Systems Conf.*, Corfou, June, 23-28, 1991.
- [innocenti91-1] Innocenti C. and Parenti-Castelli V. A novel numerical approach to the closure of the 6-6 Stewart platform mechanism. In *ICAR*, pages 851–855, Pise, June, 19-22, 1991.
- [innocenti91-2] Innocenti C. and Parenti-Castelli V. Direct kinematics of the reverse Stewart platform mechanism. In *3rd IFAC/IFIP/IMACS Symp. on Robot Control, Syroco*, pages 75–80, Vienne, September, 16-18, 1991.
- [innocenti92] Innocenti C. and Parenti-Castelli V. Reduction singularities in kinematics solution of the general geometry 6-6 Stewart platform. In *IMACS/SICE Int. Symp. on Robotics, Mechatronics, and Manufacturing Systems*, pages 451–458, Kobe, September, 16-20, 1992.
- [innocenti92-1] Innocenti C. and Parenti-Castelli V. Forward kinematics of the general 6-6 Stewart fully-parallel mechanism: an exhaustive numerical approach via a mono-dimensional search algorithm. In *22nd Biennial Mechanisms Conf.*, volume DE-45, pages 545–552, Scottsdale, September, 13-16, 1992.
- [innocenti92-2] Innocenti C. and Parenti-Castelli V. Analytical form solution of the direct kinematics of a 4-4 fully in-parallel actuated six degree-of-freedom mechanism. In *9th RoManSy*, pages 41–50, Udine, 1992.
- [innocenti92-3] Innocenti C. and Parenti-Castelli V. Singularity-free evolution from one configuration to another in serial and fully-parallel manipulators. In *22nd Biennial Mechanisms Conf.*, pages 553–560, Scottsdale, September, 13-16, 1992.
- [innocenti92-4] Innocenti C. Forward kinematics in analytical form of the topologically-symmetric 4-4 fully-parallel mechanism. In *ISRAM*, pages 411–418, Santa-Fe, November, 11-13, 1992.
- [innocenti93] Innocenti C. and Parenti-Castelli V. Echelon form solution of direct kinematics for the general fully-parallel spherical wrist. *Mechanism and Machine Theory*, 28(4):553–561, July 1993.
- [innocenti93-1] Innocenti C. and Parenti-Castelli V. Direct kinematics in analytical form of a general 5-4 fully-parallel manipulators. In J. Angeles P. Kovacs, G. Hommel, editor, *Computational Kinematics*, pages 141–152. Kluwer, 1993. **Keywords:** forward kinematics.
- [innocenti93-2] Innocenti C. and Parenti-Castelli V. Closed-form direct position analysis of a 5-5 parallel mechanism. *ASME J. of Mechanical Design*, 115(3):515–521, September 1993.
- [innocenti94] Innocenti C. and Parenti-Castelli V. Symbolic-form forward kinematics of a 5-4 fully-parallel manipulators. In Lenarčič J. and Ravani B., editors, *ARK*, pages 429–438, Ljubljana, July, 4-6, 1994. Springer-Verlag.

- [innocenti94-1] Innocenti C. private communication, January 1994. Communication personnelle. **Keywords:** forward kinematics.
- [innocenti95] Innocenti C. Direct kinematics in analytical form of the 6-4 fully parallel mechanism. *ASME J. of Mechanical Design*, 117(1):89–95, March 1995.
- [innocenti95-1] Innocenti C. Algorithms for kinematic calibration of fully-parallel manipulators. In J-P. Merlet B. Ravani, editor, *Computational Kinematics*, pages 241–250. Kluwer, 1995. **Keywords:** calibration.
- [innocenti95-2] Innocenti C. Analytical-form direct kinematics for the second scheme of a 5-5 general-geometry fully parallel manipulator. *J. of Robotic Systems*, 12(10):661–676, 1995.
- [innocenti98] Innocenti C. Forward kinematics of a 6-6 fully parallel manipulator with congruent base and platform. In *ARK*, pages 137–146, Strobl, June 29- July 4, 1998.
- [innocenti98-1] Innocenti C. and Parenti-Castelli V. Singularity-free evolution from one configuration to another in serial and fully-parallel manipulators. *ASME J. of Mechanical Design*, 120(1):73–79, March 1998.
- [innocenti98-2] Innocenti C. and Parenti-Castelli V. Closed-form determination of the location of a rigid body by seven in-parallel linear transducers. *ASME J. of Mechanical Design*, 120(2):293–298, June 1998.
- [innocenti2001] Innocenti C. Forward kinematics in polynomial form of the general Stewart platform. *ASME J. of Mechanical Design*, 123(2):254–260, June 2001.
- [innocenti2006] Innocenti C. and Wenger P. Position analysis of the RRP-3(SS) multi-loop spatial structure. *ASME J. of Mechanical Design*, 128(1):272–278, January 2006.
- [inoue85] Inoue H., Tsusaka Y., and Fukuizumi T. Parallel manipulator. In *3rd ISRR*, pages 321–327, Gouvieux, France, October, 7-11, 1985.
- [iriarte2008] Iriarte X., Diaz-Rodriguez M., and Mata V. Multicriteria approach for optimal trajectories in dynamic parameter identification of parallel robots. In *2nd European Conf. on Mechanism Science (Eucomes)*, Cassino, September, 17-20, 2008.
- [iriarte2017] Iriarte X. and others . Determination of the symbolic base inertial parameters of planar mechanisms. *European Journal of Mechanics A/Solids*, 61:82–91, 2017.
- [isaksson2010] Isaksson M. and others . Improving the kinematic performance of the SCARA-Tau PKM. In *IEEE Int. Conf. on Robotics and Automation*, pages 4863–4690, Anchorage, May, 3-8, 2010.
- [isaksson2011] Isaksson M. A family of planar parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, Shanghai, May, 9-13, 2011.
- [isaksson2012] Isaksson M., Brogardh T., and Nahavandi S. Parallel manipulators with rotation-symmetric arm system. *ASME J. of Mechanical Design*, 134(11):114503–1/6, November 2012.
- [isaksson2015] Isaksson M., Nyhof L., and Nahavandi S. On the feasibility of utilising gearing to extend the rotational workspace of a class of parallel robots. *Robotics and Computer-Integrated Manufacturing*, 35:126–136, October 2015.
- [isaksson2016] Isaksson M., Gsselin C., and Marlow K. An introduction to utilising the redundancy of a kinematically redundant parallel manipulator to operate a gripper. *Mechanism and Machine Theory*, 101:50–59, 2016.
- [isaksson2017] Isaksson M., Gosselin C., and Marlow K. Singularity analysis of a class of kinematically redundant parallel Schönflies motion generators. *Mechanism and Machine Theory*, 112:172–191, 2017.
- [isaksson2017-1] Isaksson M. and others . Novel fault-tolerance indices for redundantly actuated parallel robots. *ASME J. of Mechanical Design*, 139, April 2017.
- [ismail2016] Ismail M., Lahouar S., and Romdhane L. Collision-free and dynamically feasible trajectory of a hybrid cable–serial robot with two passive links. *Robotics and Autonomous Systems*, 80:24–33, 2016.
- [ismail2016-1] Ismail M. Novel hexapod-based unidirectional testing and FEM analysis of the RNC isolator. *Structural Control and Health Monitoring*, 23:894–922, 2016.

- [itul2006] Itul T.P. and Pisla D.L. Workspace analysis of a three degrees of freedom parallel robot. In *International Conference on Automation, Quality and Testing, Robotics*, Cluj-Napoca, 2006.
- [itul2007] Itul T.P., Pisla D.L., and Pisla A. Dynamic model of a 6-dof parallel robot by considering friction effects. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [itul2010] Itul T.P., Pisla D.L., and Stoica A. Kinematics and design of a simple 2-dof parallel mechanism used for orientation. In *3rd European Conf. on Mechanism Science (Eucomes)*, Cluj-Napoca, September, 14-17, 2010.
- [iurascu2003] Iurascu C.C. and Park F.C. Geometric algorithm for kinematic calibration of robots containing closed loops. *ASME J. of Mechanical Design*, 125(1):23–32, March 2003.
- [iwata90] Iwara H. Artificial reality with force-feedback: development of desktop virtual space with compact master manipulator. *Computer Graphics*, 24(4):165–170, August 1990.
- [iwatsuki2005] Iwatsuki N., Hoshino R., and Morikawa K. Direct kinematics of a 3-R-R-S spatial parallel manipulator based on the kinematic analysis of R-S-S chain. In *Computational Kinematics*, Cassino, May, 4-6, 2005.
- [iyun-2002] Iyun O., D.P. Borschnek, and Ellis R.E. Computer-assisted correction of bone-deformities using a 6-dof parallel spatial mechanism. In *MICCAI*, pages 232–240, Tokyo, November, 16-18, 2002.
- [izard2012] Izard J-B. and others . Integration of a parallel cable-driven robot on an existing building facade. In *1st Int. Conf. on cable-driven parallel robots (CableCon)*, pages 149–166, Stuttgart, September, 3-4, 2012.
- [izard2012-1] Izard J-B. and others . A reconfigurable robot for cable-driven parallel robotic research and industrial scenario proofing. In *1st Int. Conf. on cable-driven parallel robots (CableCon)*, pages 135–148, Stuttgart, September, 3-4, 2012.
- [izard2017] Izard J-B. and others . Large-scale 3d printing with cable-driven parallel robots. *Construction Robotics*, 1(1):69–76, 2017.
- [izard2017-1] Izard J-B. and others . On the improvements of a cable-driven parallel robot for achieving additive manufacturing for construction. In *3rd Int. Conf. on cable-driven parallel robots (CableCon)*, Québec, 2017.
- [jha2016-phd] Jha R. *Contributions to the performance analysis of parallel robots*. Ph.D. Thesis, Ecole Centrale de Nantes, Nantes, July 2016. **Keywords:** singularity.
- [jha2018] Jha R. Influence of design parameters on the singularities and workspace of a 3-RPS parallel robot. *Trans. CSME*, 42(1), 2018.
- [jha2018-1] Jha R. and others . Workspace, joint space and singularities of a family of delta-like robot. *Mechanism and Machine Theory*, 127:71–95, 2018.
- [jabbari2020] Jabbari I., Boutayeb M., and Jammazi C. Discontinuous finite-time control for cable driven parallel robots. In *Conference on Control Technology and Applications (CCTA)*, August, 24-26, 2020.
- [jaberi2013] Jaber A. and others . Design and kinematic analysis of a 4-dof serial-parallel manipulator for urban bus driving simulator. In *First RSI/ISM International Conference on Robotics and Mechatronics (ICRoM)*, 2013.
- [jadhao2017] Jadhao K.S. and others . Design and analysis of a novel cable-driven haptic master device for planar grasping. In *3rd Int. Conf. on cable-driven parallel robots (CableCon)*, Québec, 2017.
- [jafari2003] Jafari F. and McInroy J.E. Orthogonal Gough-Stewart platforms for micromanipulation. *IEEE Trans. on Robotics and Automation*, 19(4):595–603, August 2003.
- [jahn2022] Jahn P., Hentschel J., and Raatz A. Design and analysis of a compliant parallel robot with cardan joints for a cryogenic working environment. In *ARK*, Bilbao, June, 26-30, 2022.
- [jain90] Jain S. and Kramer S.N. Forward and inverse kinematics solution of the variable geometry truss robot based on N-celled tetrahedron-tetrahedron truss. *ASME J. of Mechanical Design*, 112(1):16–22, March 1990.
- [jakobovic2002] Jakobovic D. and Jelenkovic L. The forward and inverse kinematics problems for Stewart parallel mechanisms. In *Computer Integrated Manufacturing and High Speed Machining, CIM2002*, Brijuni, 2002.

- [jakobsen98] Jakobsen O.G. and Larsen J.A. Design of double-octahedral VGT manipulators. In *New machine concepts for handling and manufacturing devices on the basis of parallel structures*, pages 201–219, Braunschweig, November, 10–11, 1998.
- [jamshidifar2015] Jamshidifar H. and others . Adaptive vibration control of a flexible cable driven parallel robot. In *15th IFAC Symposium on Information Control Problems in Manufacturing (INCOM 2015)*, 2015.
- [jamshidifar2021] Jamshidifar H., Rushton M., and Khajepour A. A reaction-based stabilizer for nonmodel-based vibration control of cable-driven parallel robots. *IEEE Trans. on Robotics*, 37(2), April 2021.
- [jamwal2009] Jamwal P.K. and others . Kinematic design optimization of a parallel ankle rehabilitation robot using modified genetic algorithm. *Robotics and Autonomous Systems*, 57:1018–1027, 2009.
- [jamwal2010] Jamwal P.K. and others . Forward kinematics modelling of a parallel ankle rehabilitation robot using modified fuzzy inference. *Mechanism and Machine Theory*, 45(11):1537–1554, November 2010.
- [jamwal2010-1] Jamwal P.K. and others . Design analysis of a pneumatic muscle driven wearable parallel robot for ankle joint rehabilitation. In *IEEE/ASME International Conference on Mechatronic and Embedded Systems and Applications*, pages 403–408, Qingdao, 2010.
- [jamwal2014] Jamwal P.K. and others . An adaptive wearable parallel robot for the treatment of ankle injuries. *IEEE/ASME Trans. on Mechatronics*, 19(1), February 2014.
- [jamwal2015] Jamwal P.K. and others . Three-stage design analysis and multicriteria optimization of a parallel ankle rehabilitation robot using genetic algorithm. *IEEE Trans. on Automation Science and Engineering*, 12(4), November 2015.
- [jamwal2016] Jamwal P.K. and Hussain S. Multicriteria design optimization of a parallel ankle rehabilitation robot: Fuzzy dominated sorting evolutionary algorithm approach. *IEEE Trans. on Systems, Man, and Cybernetics Systems*, 46(5), May 2016.
- [jamwal2016-1] Jamwal P.K. and others . Impedance control of an intrinsically compliant parallel ankle rehabilitation robot. *IEEE Trans. on Industrial Electronics*, 63(6), June 2016.
- [janabi2004] Janabi-Sharifi F. and Shckokin B. A rotary parallel manipulator: modeling and workspace analysis. In *IEEE Int. Conf. on Robotics and Automation*, pages 3671–3677, New Orleans, April, 28–30, 2004.
- [jean96] Jean M. and Gosselin C. Static balancing of planar parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 3732–3737, Minneapolis, April, 24–26, 1996.
- [jeanneau2020] Jeanneau G. and others . R-min: a fast collaborative underactuated parallel robot for pick-and-place operations. In *IEEE Int. Conf. on Robotics and Automation*, Paris, May 31– August 31, 2020.
- [jelenkovic2002] Jelenkovic L. and Budin L. Error analysis of a Stewart platform based manipulators. In *Int. Conf. on Intelligent Engineering Systems (INES)*, Opatija, May, 26–28, 2002.
- [jelenkovic2004] Jelenkovic L., Jakobovic D., and Budin L. Hexapod structure evaluation as web service. In *Int. Conf. on Informatics in Control, Automation and Robotics*, Setubal, August, 25–28, 2004.
- [jensen-ka-2006] Jensen K.A., Lusk C.P., and Howell L.L. An XYZ micromanipulator with three translational degrees of freedom. *Robotica*, 24(3):305–314, 2006.
- [jensen94] Jensen P.S. and others . Robotic micromanipulator for ophthalmic surgery. In *1st Int. Symp. on Medical Robotics and Computer assisted Surgery*, pages 204–210, Pittsburgh, September, 22–24, 1994.
- [jeong-h2014] Jeong H. and others . Forward kinematic solution through geometry analysis for rehabilitation cable robot. In *Biomedical Engineering International Conference*, 2014.
- [jeong-ji-2002] Jeong J.I. and others . Kinematic calibration for redundantly actuated parallel mechanisms. In *ASME Design Engineering Technical Conference*, Montréal, September 29– October 2, 2002.
- [jeong-ji-2004] Jeong J.I. and others . Kinematic calibration for redundantly actuated parallel mechanisms. *ASME J. of Mechanical Design*, 126(2):307–318, March 2004.

- [jeong98] Jeong J.W., Kim S.H., and Kwak Y.K. Kinematic analysis of the wire parallel mechanism for full coordinate measuring of industrial robot. *KSME International Journal*, 12(6):1064–1072, 1998.
- [jeong99] Jeong J.W., Kim S.H., and Kwak Y.K. Kinematics and workspace analysis of a parallel wire mechanism for measuring a robot pose. *Mechanism and Machine Theory*, 34(6):825–841, August 1999.
- [jha2015] Jha R., Chablat D., Rouillier F., and Moroz G. Workspace and singularity analysis of a delta like family robot. In *4th IFToMM International Symposium on Robotics and Mechatronics*, pages 121–130, Poitiers, 2015.
- [ji-j2009] Ji J., L. Sun., and Zhu Y. A novel high-speed and high-accuracy manipulator of planar five-link structure: modeling and calibration. *Advanced Robotics*, 23:89–112, 2009.
- [ji-p2000] Ji P. and Wu H.T. A fast solution to identity placement parameters for modular platform manipulators. *J. of Robotic Systems*, 17(5):251–253, 2000.
- [ji-p2001] Ji P. and Wu H.T. Algebraic solution to forward kinematics of a 3-dof spherical parallel manipulator. *J. of Robotic Systems*, 18(5):251–257, 2001.
- [ji-p2001-1] Ji P. and Wu H.T. A closed-form forward kinematics solution for the 6 – 6<sup>p</sup> Stewart platform. *IEEE Trans. on Robotics and Automation*, 17(4):522–526, August 2001.
- [ji-p2002] Ji P. and Wu H. An efficient approach to the forward kinematics of a planar parallel manipulator with similar platform. *IEEE Trans. on Robotics and Automation*, 18(4):647–649, August 2002.
- [ji93] Ji Z. Study of the effect of leg inertia in Stewart platform. In *IEEE Int. Conf. on Robotics and Automation*, pages 121–126, Atlanta, May, 2-6, 1993.
- [ji94] Ji Z. Dynamic decomposition for Stewart platforms. *ASME J. of Mechanical Design*, 116(1):67–69, March 1994.
- [ji96] Ji Z. Analysis of design parameters in platform manipulators. *ASME J. of Mechanical Design*, 118(4):526–531, December 1996.
- [ji98] Ji Z. and Song P. Design of a reconfigurable platform manipulator. *J. of Robotic Systems*, 15(6):341–346, 1998.
- [ji98-1] Ji Z. and Leu M.C. Design, reconfiguration, and control of parallel robot machines. In *First European-American Forum on Parallel Kinematic Machines*, pages 111–129, Milan, August 31- September 1, 1998.
- [ji99] Ji Z. and Li Z. Identification of placement parameters for modular platform manipulators. *J. of Robotic Systems*, 16(4):227–236, 1999.
- [ji2003] Ji Z. Study of planer three-degree-of-freedom 2-RRR parallel manipulators. *Mechanism and Machine Theory*, 38(5):409–416, May 2003.
- [jia2020] Kia H. and others . Second-order sliding-mode-based synchronization control of cable-driven parallel robots. *IEEE/ASME Trans. on Mechatronics*, 26(1), February 2020.
- [jiang-hz2011] Jiang H-Z. and others . Dynamic isotropic design for modified Gough-Stewart platforms lying on a pair of circular hyperboloids. *Mechanism and Machine Theory*, 46(9):1301–1315, September 2011.
- [jiang-hz2011-1] Jiang H-Z. and others . Dynamic isotropic design of a class of Gough–Stewart parallel manipulators lying on a circular hyperboloid of one sheet. *Mechanism and Machine Theory*, 46:358–374, 2011.
- [jiang-l2015] Jiang L., Gao B., and Zhao J. Kinematic and static analysis of a cable-driven parallel robot with a flexible link spine. In *IEEE Conference on Robotics and Biomimetics*, Zhuhai, 2015.
- [jiang-q2008] Jiang Q. and Gosselin C.M. The maximal singularity-free workspace of the Gough-Stewart platform for a given orientation. *ASME J. of Mechanical Design*, 130(11):112304–1/8, November 2008.
- [jiang-q2008-1] Jiang Q. and Gosselin C.M. Singularity equations of Gough-Stewart platforms using a minimal set of geometrix parameters. *ASME J. of Mechanical Design*, 130(11):112303–1/7, November 2008.
- [jiang-q2009] Jiang Q. and Gosselin C.M. Determination of the maximal singularity-free orientation workspace for the Gough-Stewart platform. *Mechanism and Machine Theory*, 44(6):1281–1293, June 2009.

- [jiang-q2010] Jiang Q. and Kumar V. The inverse kinematics of 3-d towing. In *ARK*, pages 321–328, Piran, June 28–July 1, 2010.
- [jiang-q2010-1] Jiang Q. and Kumar V. The direct kinematics of objects suspended from cables. In *ASME DETC*, pages 193–202, Montréal, 2010.
- [jiang-q2013] Jiang Q. and Kumar V. The inverse kinematics of cooperative transport with multiple aerial robots. *IEEE Trans. on Robotics*, 29(1):136–145, July 2013.
- [jiang-s2012] Jiang S. and others . Kinematic analysis of a 5-dof hybrid-driven MRI compatible robot for minimally invasive prostatic interventions. *Robotica*, 30(7):1147–1156, December 2012.
- [jiang-s2015] Jiang S. and others . Accurate error compensation for a MR-compatible surgical robot based on a novel kinematic calibration method. *Advanced Robotics*, 29(18):1183–1194, 2015.
- [jiang-x2016] Jiang X. and Gosselin C. Dynamic point-to-point planning of a three-dof cable-suspended parallel robot. *IEEE Trans. on Robotics*, 32(6):1550–1557, December 2016.
- [jiang-x2017] Jiang X. and Gosselin C. Dynamic transition trajectory planning of three-dof cable-suspended parallel robots. In *3rd Int. Conf. on cable-driven parallel robots (CableCon)*, Québec, 2017.
- [jiang-y2015] Jiang Y., Li T-M., and Wang L-P. Dynamic modeling and redundant force optimization of a 2-dof parallel kinematic machine with kinematic redundancy. *Robotics and Computer-Integrated Manufacturing*, 32:1–10, April 2015.
- [jiang-y2015-1] Jiang Y., Li T-M., and Wang L-P. The dynamic modeling, redundant-force optimization, and dynamic performance analyses of a parallel kinematic machine with actuation redundancy. *Robotica*, 33(2):241–263, February 2015.
- [jiang-y2018] Jiang Y. and others . Kinematic error modeling and identification of the over-constrained parallel kinematic machine. *Robotics and Computer-Integrated Manufacturing*, 49:105–119, 2018.
- [jiang-y2018-1] Jiang Y. and others . Improving tracking accuracy of a novel 3-dof redundant planar parallel kinematic machine. *Mechanism and Machine Theory*, 119:198–218, 2018.
- [jiang2001] Jiang H. and others . Effective envelope method for Stewart platform workspace. *Progress in Natural Science*, 11(2):129–134, February 2001.
- [jin-m-2016] Jin M. and Zhang X. A new topology optimization method for planar compliant parallel mechanisms. *Mechanism and Machine Theory*, 95:42–58, 2016.
- [jin-s2015] Jin S., Kim J., and Seo T. Optimization of a redundantly actuated 5R symmetrical parallel mechanism based on structural stiffness. *Robotica*, 33(9):1973–1980, November 2015.
- [jin-x2013] Jin X. and others . Four-cable-driven parallel robot. In *13th International Conference on Control, Automation and Systems*, Gwangju, October, 20–23, 2013.
- [jin-x2014] Jin X. and others . Upper limb rehabilitation using a planar cable driven parallel robot with various rehabilitation strategy. In *2nd Int. Conf. on cable-driven parallel robots (CableCon)*, Duisburg, August, 24–27, 2014.
- [jin-x2016] Jin X. and others . Geometric parameter calibration using a low cost laser distance sensor for a planar cable robot: MATLAB simulation. In *13th International Conference on Ubiquitous Robots and Ambient Intelligence (URAI)*, Xian, August, 19–22, 2016.
- [jin-x2017] Jin X. and others . A class of novel 2T2R and 3T2R parallel mechanisms with large decoupled output rotational angles. *Mechanism and Machine Theory*, 114:156–169, 2017.
- [jin-x2018] Jin X. and others . A class of novel 4-DOF and 5-DOF generalized parallel mechanisms with high performance. *Mechanism and Machine Theory*, 120:57–72, 2018.
- [jin-x2019] Jin X., Fang Y., and Zhang D. Design of a class of generalized parallel mechanisms with large rotational angles and integrated end-effectors. *Mechanism and Machine Theory*, 134:117–134, 2019.

- [jin-y2004] Jin Y., Chen I-M., and Yang G. Structure synthesis and singularity analysis of a parallel manipulator based on selective actuation. In *IEEE Int. Conf. on Robotics and Automation*, pages 4533–4538, New Orleans, April, 28-30, 2004.
- [jin-y2005] Jin Y. and Chen I-M. On the performance of a class of parallel manipulators with decoupled kinematic structure with stringent geometric constraints. In *Computational Kinematics*, Cassino, May, 4-6, 2005.
- [jin-y2007] Jin Y., Chen I-M., and Yang G. Structure synthesis of 6-dof 3-3 decoupled parallel manipulators. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [jin2002] Jin Q. and Yang T-L. Synthesis and analysis of a group of 3-degree-of-freedom decoupling parallel manipulators. In *ASME Design Engineering Technical Conference*, Montréal, September 29- October 2, 2002.
- [jin2002-1] Jin Q. and Yang T-L. Structure synthesis of parallel manipulators with 3-dimension translation and 1-dimension rotation. In *ASME 27th Biennial Mechanisms and Robotics Conf.*, Montréal, September 29- October 2, 2002.
- [jin2004] Jin Q. and Yang T-L. Theory for topology synthesis of parallel manipulators and its application to three-dimension-translation parallel manipulators. *ASME J. of Mechanical Design*, 126(1):625–639, January 2004.
- [jin2004-1] Jin Q. and Yang T-L. Synthesis and analysis of a group of 3-degree-of-freedom partially decoupled parallel manipulators. *ASME J. of Mechanical Design*, 126(2):301–306, March 2004.
- [jo89] Jo D.Y. and Haug E.J. Workspace analysis of closed loop mechanisms with unilateral constraints. In *ASME Design Automation Conf.*, pages 53–60, Montréal, September, 17-20, 1989.
- [jordan-b-2007] Jordan B.L., Batalin M.A., and Kaiser W.J. NIMS RD: a rapidly deployable cable based robot. In *IEEE Int. Conf. on Robotics and Automation*, pages 144–150, Roma, April, 10-14, 2007.
- [jordan2002] Jordan S. Approaches for minimizing tracking and vibratory errors in high-bandwidth beam steering. In *2nd Int. Workshop on Mechanical Eng. Design of Synchrotron Radiation Equipment and Instrumentation (MEDSI02)*, pages 299–307, Argonne, September, 5-6, 2002.
- [joshi2002] Joshi S.A. and Tsai L-W. Jacobian analysis of limited-dof parallel manipulators. *ASME J. of Mechanical Design*, 124(2):254–258, June 2002.
- [joshi2002-1] Joshi S.A. and Tsai L-W. A comparison study of two 3-DOF parallel manipulators: one with three and the other with four supporting legs. In *IEEE Int. Conf. on Robotics and Automation*, pages 3690–3697, Washington, May, 11-15, 2002.
- [joshi2002-2] Joshi S.A. and Tsai L-W. The kinematics of a class of 3-DOF, 4-legged parallel manipulators. In *ASME Design Engineering Technical Conference*, Montréal, September 29- October 2, 2002.
- [joshi2002-3] Joshi S.A. and Tsai L-W. Jacobian analysis of limited-dof parallel manipulators. In *ASME Design Engineering Technical Conference*, Montréal, September 29- October 2, 2002.
- [joshi2003] Joshi S.A. and Tsai L-W. The kinematics of a class of 3-DOF, 4-legged parallel manipulators. *ASME J. of Mechanical Design*, 125(1):52–60, March 2003.
- [joshi2003-1] Joshi S.A. and Tsai L-W. A comparison study of two 3-DOF parallel manipulators: one with three and the other with four supporting legs. *IEEE Trans. on Robotics and Automation*, 19(2):200–209, April 2003.
- [joshi2003-2] Joshi S.A. and Surianarayan A. Calibration of a 6-dof cable robot using two inclinometers. In *Performance Metrics for Intelligent Systems*, Gaithersburg, September, 16-18, 2003.
- [joshi2005] Joshi A. and Kim W-J. Modeling and multivariable control design methodologies for hexapod-based satellite vibration isolation. *ASME J. of Dynamic Systems, Measurement and Control*, 127(4):700–704, December 2005.
- [joubair2013] Joubair A., Stamani M., and Bonev I.A. Kinematic calibration of a five-bar planar parallel robot using all working modes. *Robotics and Computer-Integrated Manufacturing*, 29(1):14–25, February 2013.
- [jovane2002] Jovane F. and others . Design issues for reconfigurable PKMs. In *3rd Chemnitz Parallelkinematik Seminar*, pages 69–82, Chemnitz, April, 23-25, 2002.



- [ju2022] Ju Y. and others . Constraint characteristics and type synthesis of two families of 1T2R parallel mechanism. *Robotica*, 40(9):3033–3056, January 2022.
- [jui2003] Jui C.K.K. and Sun Q. Path trackability and verification for parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 4336–4341, Taipei, September, 14-19, 2003.
- [jui2005] Jui C.K.K. and Sun Q. Path tracking of parallel manipulators in the presence of force singularity. *ASME J. of Dynamic Systems, Measurement and Control*, 127(4):550–563, December 2005.
- [jun99] Jun S.H., Zheng L.Q., and Gao L.C. Direct positional analysis for a kind of 5-5 platform in-parallel robotic mechanism. *Mechanism and Machine Theory*, 34(2):285–301, February 1999.
- [jung-hk2006] Jung H.K., Crane III C.D., and Roberts R.G. Stiffness mapping of planar compliant parallel mechanisms in a serial arrangement. In *ARK*, pages 85–94, Ljubljana, June, 26-29, 2006.
- [jung-hk2008] Jung H.K., Crane III C.D., and Roberts R.G. Stiffness mapping of compliant parallel mechanisms in a serial arrangement. *Mechanism and Machine Theory*, 43(3):271–284, March 2008.
- [jung-j2016] Jung J. and others . Analysis of cable tension of high speed parallel cable robot: high speed position tracking of winch. In *16th International Conference on Control, Automation and Systems (ICCAS)*, Gyongju, October, 16-19, 2016.
- [jung-j2018] Jung J. and others . A cable-driven parallel robot remotely controlled by a human-driven parallel cable robot. In *ISR*, 2018.
- [jung93] Jung G.H. and Lee K.I. Real-time estimation of the Stewart platform forward kinematics solution. In *SICE*, pages 1239–1244, Kanazawa, August, 4-6, 1993.
- [kallio98] Kallio P. and others . Position control of a 3 dof piezohydraulic parallel micromanipulator. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Victoria, October 1998.
- [kaloorazi2014] Kaloorazi M.F., Masouleh M.T., and Caro S. Collision-free workspace of a 3-RPR planar parallel mechanism via interval analysis. In *ARK*, Ljubljana, June 29- July 3, 2014.
- [kaloorazi2015] Kaloorazi M.F., Masouleh M.T., and Caro S. Determination of the maximal singularity-free workspace of 3-dof parallel mechanisms with a constructive geometric approach. *Mechanism and Machine Theory*, 84, 2015.
- [kaloorazi2016] Kaloorazi M.H.E., Masouleh M.T., and Caro S. Determining the maximal singularity-free circle or sphere of parallel mechanisms using interval analysis. *Robotica*, 34(1):135–149, January 2016.
- [kaloorazi2017] Kaloorazi M.H.E., Masouleh M.T., and Caro S. Collision-free workspace of parallel mechanisms based on an interval analysis approach. *Robotica*, 35:1747–1760, 2017.
- [kaloorazi2018] Kaloorazi M.F., Masouleh M.T., and Caro S. Collision-free workspace of parallel mechanisms based on an interval analysis approach. *Robotica*, 35(8), 2018.
- [kamra2002] Kamra R., Kohli D., and Dhingra A.K. Forward displacement analysis of a six-dof parallel manipulator actuated by 3R3P and 4R2P chains. *Mechanism and Machine Theory*, 37(6):619–637, June 2002.
- [kanaan2007] Kanaan D., Wenger P., and Chablat D. Kinematics analysis of the parallel module of the VERNE machine. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [kanaan2007-1] Kanaan D., Wenger P., and Chablat D. Workspace and kinematic analysis of the VERNE machine. In *AIM*, Zurich, September 2007.
- [kanaan2008] Kanaan D., Wenger P., and Chablat D. Singularity analysis of limited-dof parallel manipulators using Grassmann-Cayley algebra. In *ARK*, pages 59–68, Batz/mer, June, 23-26, 2008.
- [kanaan2009] Kanaan D., Wenger P., and Chablat D. Kinematic analysis of a serial-parallel machine-tool: the VERNE machine. *Mechanism and Machine Theory*, 44(2):487–498, February 2009.

- [kanaan2009-1] Kanaan D. and others . Singularity analysis of lower mobility parallel manipulators using Grassmann–Cayley Algebra. *IEEE Trans. on Robotics*, 25(5):995–1004, 2009.
- [kang-b-2001] Kang B., Chu J., and Mills J.K. Design of high speed planar parallel manipulator and multiple simultaneous specification control. In *IEEE Int. Conf. on Robotics and Automation*, pages 2723–2728, Seoul, May, 23-25, 2001.
- [kang-b-2002] Kang B. and Mills J.K. Dynamic modeling of structurally flexible planar parallel manipulator. *Robotica*, 20(3):329–339, May 2002.
- [kang-b-2002-1] Kang B., Yeung B., and Mills J.K. Two-time scale controller design for a high speed planar parallel manipulator with structural flexibility. *Robotica*, 20(5):519–528, September 2002.
- [kang-b-2008] Kang B. and Mills J.K. *Parallel manipulators, New Developments*, chapter Dynamic modeling and vibration control of a planar parallel manipulator with structurally flexible linkages, pages 405–426. ITECH, April 2008. **Keywords:** planar robot,dynamics,vibration,control,piezo-electric.
- [kang-bh-2004] Kang B.H. and others . Analysis and design of parallel mechanisms with flexure joints. In *IEEE Int. Conf. on Robotics and Automation*, pages 4097–4102, New Orleans, April, 28-30, 2004.
- [kang-h-2018] Kang H.Y. and others . Flotation simulation in a cable-driven virtual environment - a study with parasailing. In *Conference on Human Factors in Computing Systems*, Montréal, April, 21-26, 2018.
- [kang-jy98] Kang J-Y., Kim D.H., and Lee K-I. Robust estimator for forward kinematics solution of a Stewart platform. *J. of Robotic Systems*, 15(1):29–42, 1998.
- [kang-r-2012] Kang R. and others . Learning the forward kinematics behavior of a hybrid robot employing artificial neural networks. *Robotica*, 30(5):847–855, September 2012.
- [kang-sr2018] Kang S-R. and others . Controllable magnetorheological fluid based actuators for 6-degree-of-freedom haptic master applicable to robot-assisted surgery. *Sensors and Actuators*, A(279):649–662, 2018.
- [kang90] Kang H.J. and Freeman R.A. An interactive software package (MAP) for the dynamic modeling and simulation of parallel robotic systems including redundancy. In *ASME Int. Computer in Engineering Conf.*, pages 117–123, Boston, September, 5-9, 1990.
- [kansal2022] Kansal S. and Mukherjee S. Vision-based kinematic analysis of the Delta robot for object catching. *Robotica*, 40:2010–2030, 2022.
- [kapur2007] Kapur P., Ranganath R., and Nataraju B.S. Analysis of Stewart platform with flexural joints at singular configurations. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [karboub2004] Karboub M. and others . Neural-net tuned PID control of a parallel type mechanism with force-feedback for virtual reality applications. *Robotica*, 22(3):319–327, 2004.
- [karboub2012] Karboub M. and others . Design and control of a cable controlled haptic motion simulator. *Robotica*, 30(5):709–719, September June 2012.
- [kardan2015] Kardan I. and Akbarzadeh A. An improved hybrid method for forward kinematics analysis of parallel robots. *Advanced Robotics*, 29(6):401–411, 2015.
- [karger96] Karger A. and Husty M. On self-motions of a class of parallel manipulators. In *ARK*, pages 339–348, Portoroz-Bernadin, June, 22-26, 1996.
- [karger98] Karger A. Architecture singular parallel manipulators. In *ARK*, pages 445–454, Strobl, June 29- July 4, 1998.
- [karger98-1] Karger A. and Husty M. Classification of all self-motion of the original Stewart-Gough platform. *Computer-aided design*, 30(3):205–215, 1998.
- [karger98-2] Karger A. Classification of 5R closed kinematic chains with self mobility. *Mechanism and Machine Theory*, 33(1-2):213–222, January 1998.

- [karger2001] Karger A. Singularities and self-motions of equiform platforms. *Mechanism and Machine Theory*, 36(8):801–815, August 2001.
- [karger2002] Karger A. Singularities and self-motions of a special type of platforms. In *ARK*, pages 155–164, Caldes de Malavalla, June 29- July 2, 2002.
- [karger2003] Karger A. Architecture singular planar parallel manipulators. *Mechanism and Machine Theory*, 38(11):1149–1164, November 2003.
- [karger2006] Karger A. Stewart-Gough platforms with simple singularity surface. In *ARK*, pages 247–254, Ljubljana, June, 26-29, 2006.
- [karger2008] Karger A. Architecturally singular non-planar parallel manipulators. *Mechanism and Machine Theory*, 43(3):335–346, March 2008.
- [karger2008-1] Karger A. Parallel manipulators with simple geometrical structure. In *2nd European Conf. on Mechanism Science (Eucomes)*, Cassino, September, 17-20, 2008.
- [karger2010] Karger A. Self-motions of 6-3 Stewart-Gough type parallel manipulators. In *ARK*, pages 359–366, Piran, June 28- July 1, 2010.
- [karimi-a-2016] Karimi A., Masouleh M.T., and Cardou P. Avoiding the singularities of 3-RPR parallel mechanisms via dimensional synthesis and self-reconfigurability. *Mechanism and Machine Theory*, 101:168–180, 2016.
- [karimi-a-2014] Karimi A., Masoulet M.T., and Cardou P. The dimensional synthesis of 3 – *RPR* parallel mechanisms for a described singularity-free constant-orientation workspace. In *ARK*, Ljubljana, June 29- July 3, 2014.
- [karimi2014] Karimi D. and Nategh M.J. Kinematic non linearity analysis in hexapod machine-tools: symmetry and regional accuracy of workspace. *Mechanism and Machine Theory*, 71:115–125, 2014.
- [karman2020] Karman M.K. and others . Computation of the safe working zones of planar and spatial parallel manipulators. *Robotica*, 38:861–885, 2020.
- [karouia2000] Karouia M. and Hervè J.M. A three-dof tripod for generating spherical motion. In *ARK*, pages 395–402, Piran, June, 25-29, 2000.
- [karouia2002] Karouia M. and Hervè J.M. An orientational 3-dof parallel mechanisms. In *3rd Chemnitz Parallelkinematik Seminar*, pages 139–150, Chemnitz, April, 23-25, 2002.
- [karouia2002-1] Karouia M. and Hervè J.M. A family of novel orientational 3-dof parallel robots. In *14th RoManSy*, pages 359–368, Udine, July, 1-4, 2002.
- [karouia2003] Karouia M. and Hervè J.M. Enumération de mécanismes parallèles sphériques isostatiques. In *16eme Congrès Français de Mécanique*, Nice, September, 1-5, 2003.
- [karouia2005] Karouia M. and Hervè J.M. Asymmetrical 3-dof spherical parallel mechanisms. *European Journal of Mechanics A/Solids*, 24(1):47–57, - February 2005.
- [karouia2006] Karouia M. and Hervè J.M. Non-overconstrained 3-dof spherical parallel manipulators of type 3-RCC, 3-CRR, 3-CRC. *Robotica*, 24(1):85–94, January 2006.
- [kassner90] Kassner D.J. Kinematics analysis of a planar three-degree-of-freedom platform-type robot manipulator. Master’s thesis, Purdue University, Purdue, December 1990. **Keywords:** planar robot, kinematics, singularity, workspace, maximal workspace.
- [katliar2017] Katliar M., Fischer J., Frison G, Diehl M., Teufel H., and Bühlhoff H.H. Nonlinear model predictive control of a cable-robot-based motion simulator. In *20th IFAC World Congress*, 2017.
- [kawamura95] Kawamura S. and others . Development of an ultrahigh speed robot FALCON using wire drive system. In *IEEE Int. Conf. on Robotics and Automation*, pages 215–220, Nagoya, May, 25-27, 1995.
- [kawamura2000] Kawamura S. and others . High-speed manipulation by using parallel wire-driven robots. *Robotica*, 18(1):13–21, January 2000.

- [kazerounian2002] Kazerounian K. Is design of new drugs a challenge for kinematics? In *ARK*, pages 135–144, Caldes de Malavalla, June 29- July 2, 2002.
- [kelaiaia2012] Kelaiaia R., Company O., and Zaatri A. Multiobjective optimization of parallel kinematic mechanisms by the genetic algorithms. *Robotica*, 30(5):783–797, 2012.
- [kelaiaia2012-1] Kelaiaia R., Zaatri A., and Company O. Multiobjective optimization of 6-dof UPS parallel manipulators. *Advanced Robotics*, 26:1885–1913, 2012.
- [kelaiaia2012-2] Kelaiaia R., Company O., and Zaatri A. Multiobjective optimization of a linear Delta parallel robot. *Mechanism and Machine Theory*, 50:159–178, 2012.
- [kelaiaia2012-phd] Kelaiaia R. *Contribution à la conception optimale de machine-outils parallèles*. Ph.D. Thesis, Université de Skikda, Skikda, April 2012. **Keywords:** optimal design, machine-tool, structural synthesis.
- [kelaiaia2016] Kelaiaia R. and others . Some investigations into the optimal dimensional synthesis of parallel robots. *The International Journal of Advanced Manufacturing Technology*, 83:1525–1538, 2016.
- [kelemen96] Kelemen A. and others . DSP-based control of a parallel-robot drive with permanent-magnet synchronous servomotors. *Electromotion*, 3:181–186, 1996.
- [keler98] Keler M.L. Dual expansion of an optimal spherical platform device. In *ARK*, pages 79–86, Strobl, June 29-July 4, 1998.
- [kermanian2019] Kermanian A. and others . Dynamic analysis of flexible parallel robots via enhanced co-rotational and rigid finite element formulations. *Mechanism and Machine Theory*, 139:144–173, 2019.
- [kerr88] Kerr D.R. Analysis, properties, and design of a Stewart-platform transducer. In *ASME Design Technology Conf.*, pages 139–145, New-York, 1988.
- [kerr89] Kerr D.R. Analysis, properties, and design of a Stewart-platform transducer. *J. of Mechanisms, Transmissions and Automation in Design*, 111(1):25–28, March 1989.
- [kerr92] Kerr D.R., Griffis M., Sanger D.J., and Duffy J. Redundant grasps, redundant manipulators and their dual relationships. *J. of Robotic Systems*, 9(7):973–1000, 1992.
- [keshtkar2017] Keshtkar S. and others . Adaptive sliding-mode controller based on the "super-twist" state observer for control of the Stewart platform. *Nonlinear Systems*, 78(7):1218–1233, 2017.
- [kevac2017] Kevac L., Filipovic M., and Racik A. The trajectory generation algorithm for the cable-suspended parallel robot- the CPR trajectory solver. *Robotics and Autonomous Systems*, 94:25–33, 2017.
- [khakpour2014] Khakpour H., Birglen L., and S-A. Tahan. Synthesis of differentially driven planar cable parallel manipulators. *IEEE Trans. on Robotics*, 30(3), June 2014.
- [khalid2018] Khalid A. and Mekid S. Intelligent spherical joints based tri-actuated spatial parallel manipulator for precision applications. *Robotics and Computer-Integrated Manufacturing*, 54:173–184, 2018.
- [khalil99] Khalil W. and Besnard S. Self calibration of Stewart-Gough parallel robot without extra sensors. *IEEE Trans. on Robotics and Automation*, 15(6):1116–1121, December 1999.
- [khalil2001] Khalil W. and Besnard S. Identifiable parameters for the geometric calibration of parallel robots. *Archive of Control Sciences*, 11(3-4):263–277, 2001.
- [khalil2002] Khalil W. and Guegan S. A novel solution for the dynamic modeling of Gough-Stewart manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 817–822, Washington, May, 11-15, 2002.
- [khalil2004] Khalil W. and Ibrahim O. General solution for the dynamic modeling of parallel robots. In *IEEE Int. Conf. on Robotics and Automation*, pages 3665–3670, New Orleans, April, 28-30, 2004.
- [khalil2004-1] Khalil W. and Guegan S. Inverse and direct dynamic modeling of Gough-Stewart robots. *IEEE Trans. on Robotics*, 20(4):755–761, August 2004.
- [khalil2007] Khalil W. and Ibrahim O. General solution for the dynamic modeling of parallel robots. *J. of Intelligent and Robotic Systems*, 49(1):19–37, May 2007.

- [khalilpour2012] Khalilpour S.A. and others . Feasible kinematic sensitivity in cable robots based on interval analysis. In *1st Int. Conf. on cable-driven parallel robots (CableCon)*, pages 233–249, Stuttgart, September, 3-4, 2012.
- [khan-2005] Khan W.A. and others . Recursive kinematics and inverse dynamics for a planar 3R parallel manipulator. *ASME J. of Dynamic Systems, Measurement and Control*, 127(4):529–536, December 2005.
- [khan-2005-1] Khan W.A. and others . Modular and recursive kinematics and dynamics for parallel manipulators. *Multibody System Dynamics*, 14:419–455, 2005.
- [khanzode2022] Khanzode D. and others . Stacked tensegrity mechanism for medical application. In *ARK*, Bilbao, June, 26-30, 2022.
- [khatib88] Khatib O. Inertial characteristics and dextrous dynamic coordination of macro/micro manipulator systems. In *7th CISM-IFTOMM Symposium on Theory and Practice of Robots and Manipulators*, Udine, Italie, September 1988.
- [khatib96] Khatib O. and Bowling A. Optimization of the inertial and acceleration characteristics of manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 2883–2889, Minneapolis, April, 24-26, 1996.
- [khayour2020] Khayour I. and others . Improving disturbance rejection and dynamics of cable driven parallel robots with on-board propellers. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Las Vegas, October, 25-29, 2020.
- [khoshbin2022] Khoshbin E., Youssef K., Meziane R., and Otis M.J.-D. Reconfigurable fully constrained cable-driven parallel mechanism for avoiding collision between cables with human. *Robotica*, pages 1–26, 2022.
- [khosravi2014] Khosravi M. and Taghirad H.D. Robust PID control of fully constrained cable-driven parallel robots. *Mechatronics*, 24:87–97, 2014.
- [khosravi2014-1] Khosravi M. and Taghirad H.D. Dynamic modeling and control of parallel robots with elastic cables: singular perturbation approach. *IEEE Trans. on Robotics*, 30:694–704, 2014.
- [khosravi2014-2] Khosravi M. and Taghirad H.D. Dynamic analysis and control of fully-constrained cable robots with elastic cables: variable stiffness formulation. In *2nd Int. Conf. on cable-driven parallel robots (CableCon)*, Duisburg, August, 24-27, 2014.
- [khosravi2012] Khosravi M. and Taghirad H. Experimental performance of robust PID controller on a planar cable robot. In *1st Int. Conf. on cable-driven parallel robots (CableCon)*, pages 337–352, Stuttgart, September, 3-4, 2012.
- [khoukhi2009] Khoukhi A., Baron L., and Balazinski M. Constrained multi-objective trajectory planning of parallel kinematic machines. *Robotics and Computer-Integrated Manufacturing*, 25(4-5):756–769, August 2009.
- [kim-hw-2001] Kim H.W. and others . A transparency-optimized control for a 6-dof parallel-structured haptic device. In *IEEE Int. Conf. on Robotics and Automation*, pages 2331–2336, Seoul, May, 23-25, 2001.
- [kim-js2003] Kim J. and others . Design of a parallel mechanism platform for simulating six degrees-of- freedom general motion including continuous 360-degree spin. *Annals of the CIRP*, 52(1):347–3502, 2003.
- [kim-js2015] Kim J.S., Jeong J.H., and Park J.H. Inverse kinematics and geometric singularity analysis of a 3-SPS/S redundant motion mechanism using conformal geometric algebra. *Mechanism and Machine Theory*, 90:23–36, August 2015.
- [kim-k2003] Kim K., Chung W.K., and Youm Y. Design and analysis of a new 7-dof parallel type haptic device : PATHOS-i1. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Las Vegas, October 2003.
- [kim-s97] Kim K. Operational quality analysis of parallel manipulators with actuation redundancy. In *IEEE Int. Conf. on Robotics and Automation*, Albuquerque, April, 21-28, 1997.
- [kim-sm2009] Kim S.M., Kim W., and Yi B.-J. Kinematic analysis and optimal design of a 3T1R type parallel mechanism. In *IEEE Int. Conf. on Robotics and Automation*, pages 2199–2204, Kobe, May, 14-16, 2009.
- [kim-ys2029] Kim Y.-S. and others . Design of a six-dof motion tracking system based on a Stewart platform and ball-and-socket joints. *Mechanism and Machine Theory*, 133:84–94, 2019.

- [kim97] Kim D.I., Ching W.K., and Youm Y. Geometrical approach for the workspace of 6-dof parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 2986–2991, Albuquerque, April, 21-28, 1997.
- [kimd98] Kim D., W. Chung, and Youm Y. Analytic singularity expression for 6-dof Stewart platform-type parallel manipulators. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 1015–1020, Victoria, October 1998.
- [kimd99] Kim D. and W. Chung. Analytic singularity equation and analysis of six-dof parallel manipulators using local structurization method. *IEEE Trans. on Robotics and Automation*, 15(4):613–622, August 1999.
- [kimd2000] Kim D., W. Chung, and Youm Y. Analytic jacobian of in-parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 2376–2381, San Francisco, April, 24-28, 2000.
- [kimd2003] Kim D. and W.K. Chung. Analytic formulation of reciprocal screws and its application to nonredundant robot manipulators. *ASME J. of Mechanical Design*, 125(1):158–164, March 2003.
- [kimd2003-1] Kim D. and W.K. Chung. Kinematic condition analysis of three-dof pure translational parallel manipulators. *ASME J. of Mechanical Design*, 125(2):323–331, June 2003.
- [kimdh2000] Kim D.H., Kang J-Y., and Lee K-I. Robust tracking control design for a 6 dof parallel manipulator. *J. of Robotic Systems*, 17(10):527–547, 2000.
- [kimdh2000-1] Kim D.H., Kang J-Y., and Lee K-I. Robust nonlinear observer for forward kinematics solution of a Stewart platform: an experimental verification. *Robotica*, 18(6):601–610, November 2000.
- [kimhs-2000] Kim H.S. and Choi Y.J. The kinematic error bound analysis of the Stewart platform. *J. of Robotic Systems*, 17(1):63–73, 2000.
- [kimhs-2001] Kim H.S. and Choi Y.J. Forward/inverse force transmission capability analyses of fully parallel manipulators. *IEEE Trans. on Robotics and Automation*, 17(4):526–531, August 2001.
- [kimhs-2002] Kim H.S. and Tsai L-W. Evaluation of a cartesian parallel manipulator. In *ARK*, pages 21–28, Caldes de Malavalla, June 29- July 2, 2002.
- [kimhs-2002-1] Kim H.S. and Tsai L-W. Design optimization of Cartesian parallel manipulator. In *ASME Design Engineering Technical Conference*, Montréal, September 29- October 2, 2002.
- [kimhs-2002-2] Kim H.S. and Tsai L-W. Kinematic synthesis of a spatial 3-RPS parallel manipulator. In *ASME Design Engineering Technical Conference*, Montréal, September 29- October 2, 2002.
- [kimhs-2003] Kim H.S. and Tsai L-W. Kinematic synthesis of a spatial 3-RPS parallel manipulator. *ASME J. of Mechanical Design*, 125(1):92–97, March 2003.
- [kimhs-2003-1] Kim H.S. and Tsai L-W. Design optimization of Cartesian parallel manipulator. *ASME J. of Mechanical Design*, 125(1):43–51, March 2003.
- [kimhs-2008] Kim H.S. *Parallel manipulators, New Developments*, chapter Task space approach of robust non linear control for a 6-dof parallel manipulator, pages 427–444. ITECH, April 2008. **Keywords:** dynamics, control.
- [kimj2000] Kim J. and Park F.C. Elasto-kinematic design tools for parallel mechanisms. In *ARK*, pages 295–304, Piran, June, 25-29, 2000.
- [kimj2000-1] Kim J., Park F.C., and Kim M. Geometric design tools for stiffness and vibration analysis of robotic mechanisms. In *IEEE Int. Conf. on Robotics and Automation*, pages 1942–1947, San Francisco, April, 24-28, 2000.
- [kimj2001] Kim J. and Park F.C. Direct kinematics analysis of 3-RS parallel mechanisms. *Mechanism and Machine Theory*, 36(10):1121–1134, October 2001.
- [kimj2001-1] Kim J. and others . Eclipse-II: a new parallel mechanism enabling continuous 360-degree spinning plus three-axis translational motions. In *IEEE Int. Conf. on Robotics and Automation*, pages 3274–3279, Seoul, May, 23-25, 2001.

- [kimj2001-2] Kim J. and others . Design analysis of a redundantly actuated parallel mechanism for rapid machining. *IEEE Trans. on Robotics and Automation*, 17(4):423–434, August 2001.
- [kimj2002] Kim J. and others . Eclipse II: a new parallel mechanism enabling continuous 360-degree spinning plus three-axis translational motions. *IEEE Trans. on Robotics and Automation*, 18(3):367–373, June 2002.
- [kimni2001] Kim N-I and Lew C-W. Multi-axis vibration control of a slender structure by using Stewart platform manipulator. *Mechanism and Machine Theory*, 36(11-12):1253–1269, November 2001.
- [kimsg2001] Kim S-G. and Ryu J. Optimal design of 6 dof parallel manipulators using three point coordinates. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 2178–2182, Maui, Hawaii, October 29–November 3, 2001.
- [kimsg2003] Kim S-G. and Ryu J. New dimensionally homogeneous jacobian matrix formulation by three end-effector points for optimal design of parallel manipulators. *IEEE Trans. on Robotics and Automation*, 19(4):731–736, August 2003.
- [kimts2006] Kim T.S., Park K.W., and Lee M.K. Study on observability of a parallel-types machining centers using a single planar table and digital indicators. *Mechanism and Machine Theory*, 41(10):1147–1156, October 2006.
- [kimwk97] Kim W-K., Lee J-Y., and Yi B.J. Analysis for a planar 3 degree-of-freedom parallel mechanism with actively adjustable stiffness characteristics. In *IEEE Int. Conf. on Robotics and Automation*, pages 2663–2670, Albuquerque, April, 21-28, 1997.
- [kimwk2000] Kim W-K., Yi B.J., and Cho W. RCC characteristics of planar/spherical three degree-of-freedom parallel mechanism with joint compliance. *ASME J. of Mechanical Design*, 122(1):10–16, March 2000.
- [kimwk2001] Kim W-K., Byun Y.K., and Cho W. Closed-form forward-position solution for a 6-Dof 3-PPSP parallel mechanism and its implementation. *Int. J. of Robotics Research*, 20(1):85–99, January 2001.
- [kimwk2004] Kim W.K. and others . Singularity-free load distribution for a 6-dof parallel haptic device. In *IEEE Int. Conf. on Robotics and Automation*, pages 298–304, New Orleans, April, 28-30, 2004.
- [king73] King R.F. A flight simulator for advanced aircraft-servo: design to realization. In *Summer Computation Simulation Conf.*, pages 248–253, Montréal, July, 13-19, 1973.
- [kingsley99] Kingsley J.S., Martin R.N., and Gasho V.L. A hexapode 12m antenna design concept for the MMA. Research Report 263, MMA, May, 7, 1999.
- [kino2002] Kino H. and Kawamura S. Development of a serial link structure/parallel wire system for a force display. In *IEEE Int. Conf. on Robotics and Automation*, pages 829–834, Washington, May, 11-15, 2002.
- [kino2007] Kino H. and others . Robust PID control using adaptive compensation for completely restrained parallel -wire driven parallel robots: translational systems using the minimum number of wires under zero-gravity condition. *IEEE Trans. on Robotics*, 23(4):803–811, August 2007.
- [kino2018] Kino H. and others . 3-dof planar parallel-wire driven robot with an active balancer and its model-based adaptive control. *Advanced Robotics*, 32(14):766–777, 2018.
- [kirchdessner2016] Kirchdessner N. and others . The ETH field phenotyping platform FIP: a cable-suspended multi-sensor system. *Functional Plant Biology*, 44:154–168, 2016.
- [kirchhoff2010] Kirchhof M.R. and Büttgenbach S. MEMS fluxgate magnetometer for parallel robot application. *Microsyst Techno*, 16:787–790, 2010.
- [klein2010] Klein J. and others . Optimization of a parallel shoulder mechanism to achieve a high-force, low-mass, robotic-arm exoskeleton. *IEEE Trans. on Robotics*, 26(4):710–715, August 2010.
- [kleinfinger86] Kleinfinger J.F. *Modélisation dynamique de robots à chaînes cinématiques simple arborescente ou fermée en vue de leur commande*. Ph.D. Thesis, Université de Nantes, Nantes, May, 16, 1986. **Keywords:** dynamics.

- [klimchik2011-phd] Klimchik A. *Enhanced stiffness modelling of serial and parallel manipulators for robotic-based processing of high performance materials*. Ph.D. Thesis, Ecole Centrale, Nantes, October, 27, 2011. **Keywords:** stiffness, machine-tool.
- [klimchik2012] Klimchik A. and others . Compensation of compliance errors in parallel manipulators composed of non-perfect kinematic chains. In *ARK*, pages 51–58, Innsbruck, June, 25–28, 2012.
- [klimchik2012-1] Klimchik A. and others . Stiffness matrix of manipulators with passive joints: computational aspects. *IEEE Trans. on Robotics*, 28(4):955–961, August 2012.
- [klimchik2012-2] Klimchik A., Pashkevich A., and Chablat D. Stiffness modeling of non-perfect parallel manipulators. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Vilamoura, October, 7–12, 2012.
- [klimchik2015] Klimchik A. and others . Static stability of manipulator configuration: influence of the external loading. *European Journal of Mechanics A/Solids*, 51:193–203, 2015.
- [klinkhamer2003] Klinkhamer F. An adjustment for five degrees of freedom as an alternative for a hexapod mechanism. In *SPIE Optomechanics 2003*, San-Diego, August, 3–8, 2003.
- [knapczyk92] Knapczyk J. and Dzierzek S. Kinematic analysis of 6S-5S type Stewart platform mechanism by using vector method. In *ARK*, pages 123–128, Ferrare, September, 7–9, 1992.
- [knapczyk96] Knapczyk J. and Tora G. An inverse force analysis of the spherical 3-dof parallel manipulator with three linear actuators considered as spring system. In *11th RoManSy*, pages 53–60, Udine, July, 1–4, 1996.
- [knapczyk98] Knapczyk J. and Dzierzek S. Elastokinematic analysis of the 6-5 in-parallel mechanism with translational springs supporting the platform. In *12th RoManSy*, pages 88–94, Paris, July, 6–9, 1998.
- [knapczyk2007] Knapczyk J. and Maniowski M. Estimation of line and torsional stiffness parameters for legs of 6dof parallel mechanism. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18–21, 2007.
- [baiko2015] Ko S. and others . Cable-driven parallel robot for cleaning of ship hull, 2015. Patent KR20150114136A. **Keywords:** patent, wire robot, marine.
- [kobler2014] Kobler J-P. and others . Design optimization of a bone-articulated, redundant and reconfigurable parallel kinematic device for skull surgery. In *IEEE Int. Conf. on Robotics and Automation*, Hong-Kong, 7 June 31–June , 2014.
- [kochan96] Kochan A. Parallel robot perfect propellers. *Industrial Robot*, 23(4):27–30, 1996.
- [kock98] Kock S. and Schumacher W. A parallel x-y manipulator with actuation redundancy for high speed and active stiffness applications. In *IEEE Int. Conf. on Robotics and Automation*, pages 2295–2300, Louvain, May, 18–20, 1998.
- [kock98-1] Kock S. Regelungsstrategien für parallel roboter mit redundanten antrieben. In *New machine concepts for handling and manufacturing devices on the basis of parallel structures*, pages 155–164, Braunschweig, November, 10–11, 1998.
- [kock2000] Kock S. and Schumacher W. Control of a fast parallel robot with a redundant chain and gear-boxes: experimental results. In *IEEE Int. Conf. on Robotics and Automation*, pages 1924–1929, San Francisco, April, 24–28, 2000.
- [kock2000-1] Kock S. and Schumacher W. A mixed elastic and rigid-body dynamic model of an actuation redundant parallel robot with high-reduction gears. In *IEEE Int. Conf. on Robotics and Automation*, pages 1918–1923, San Francisco, April, 24–28, 2000.
- [koessler2017] Koessler A. and others . Certified detection of parallel robot assembly mode under type 2 singularity crossing trajectories. In *IEEE Int. Conf. on Robotics and Automation*, 2017.
- [koessler2020] Koessler A. and others . Dynamics-based algorithm for reliable assembly mode tracking in parallel robot. *IEEE Trans. on Robotics*, 36(3), June 2020.



- [koevermans75] Koevermans W.P. and others . Design and performance of the four d.o.f. motion system of the NLR research flight simulator. In *AGARD Conf. Proc. No 198, Flight Simulation*, pages 17–1/17–11, La Haye, October, 20-23, 1975.
- [kohli88] Kohli D., Lee S-H, Tsai K-Y, and Sandor G.N. Manipulator configurations based on Rotary-Linear (R-L) actuators and their direct and inverse kinematics. *J. of Mechanisms, Transmissions and Automation in Design*, 110(4):397–404, December 1988.
- [kokkinis90] Kokkinis T. and Millies P. A dynamically redundant parallel manipulator. In *ISRAM*, pages 527–532, Burnaby, July, 18-20, 1990.
- [kokkinis91] Kokkinis T. and Millies P. A parallel robot-arm regional structure with actuational redundancy. *Mechanism and Machine Theory*, 26(6):629–641, 1991.
- [kokkinis92] Kokkinis T. and Millies P. Kinetostatic performance of a dynamically redundant parallel robot. *Int. J. of Robotics and Automation*, 7(1):30–37, 1992.
- [kolbus2006] Kolbus ., M, Stachera K., and Schumacher W. Estimation of the payload mass of a flexible parallel robot. In *5th Chemnitzer Parallelkinematik Seminar*, pages 429–442, Chemnitz, April, 25-26, 2006.
- [koliskor86] Koliskor A. Sh. The l-coordinate approach to the industrial robot design. In *V IFAC/IFIP/IMACS/IFORS Symposium*, pages 108–115, Suzdal, URSS, April, 22-25, 1986.
- [khong-l-2018] Kong L. and others . Kinematic calibration and investigation of the influence of universal joint errors on accuracy improvement for a 3-dof parallel manipulator. *Robotics and Computer-Integrated Manufacturing*, 49:388–397, 2018.
- [kong94] Kong X-W. and Yang T-L. Generation and forward displacement analyses of two new classes of analytic 6 SPS parallel robot. In *ASME Design Automation Conf.*, pages 293–300, Minneapolis, September, 11-14, 1994.
- [kong2001] Kong X. and Gosselin C.M. Generation of architecturally singular 6-SPS parallel manipulators with linearly related planar platforms. In F.C. Park C.C. Iurascu, editor, *Computational Kinematics*, pages 67–75. EJCK, May, 20-22, 2001. **Keywords:** singularity, singular robot, singular motion.
- [kong2001-1] Kong X. and Gosselin C.M. Uncertainty singularity analysis of parallel manipulators based on the instability analysis of structures. *Int. J. of Robotics Research*, 20(11):847–856, November 2001.
- [kong2001-2] Kong X. and Gosselin C.M. Forward displacement analysis of third-class analytic 3-RPR planar parallel manipulators. *Mechanism and Machine Theory*, 36(9):1009–1018, September 2001.
- [kong2002] Kong X. and Gosselin C.M. A class of 3-dof translational parallel manipulators with linear input-output equations. In *Workshop on Fundamental Issues and Future Research Directions for Parallel Mechanisms and Manipulators*, pages 25–32, Québec, October, 3-4, 2002.
- [kong2002-1] Kong X. and Gosselin C.M. Generation and forward displacement analysis of  $RPR-PR-\underline{R}PR$  analytic planar parallel manipulators. *ASME J. of Mechanical Design*, 124(2):294–300, June 2002.
- [kong2002-2] Kong X. and Gosselin C.M. Kinematics and singularity analysis of a novel type of 3- $\underline{C}RR$  3-dof translational parallel manipulator. *Int. J. of Robotics Research*, 21(9):791–798, September 2002.
- [kong2002-3] Kong X. and Gosselin C.M. Type synthesis of linear translational parallel manipulators. In *ARK*, pages 453–462, Caldes de Malavalla, June 29- July 2, 2002.
- [kong2002-4] Kong X. and Gosselin C.M. Type synthesis of 3-dof spherical parallel manipulators based on screw theory. In *ASME Design Engineering Technical Conference*, Montréal, September 29- October 2, 2002.
- [kong2004] Kong X. and Gosselin C.M. Type synthesis of three-degree-of-freedom spherical parallel manipulators. *Int. J. of Robotics Research*, 23(3):237–245, March 2004.
- [kong2004-1] Kong X. and Gosselin C.M. Type synthesis of 3-dof spherical parallel manipulators based on screw theory. *ASME J. of Mechanical Design*, 126(1):101–108, January 2004.
- [kong2004-2] Kong X. and Gosselin C.M. Type synthesis of 3 d.of. translational parallel manipulators based on screw theory. *ASME J. of Mechanical Design*, 126(1):83–92, January 2004.

- [kong2004-3] Kong X. and Gosselin C.M. Type synthesis of 3T1R 4-dof parallel manipulators based on screw theory. *IEEE Trans. on Robotics and Automation*, 20(2):181–190, April 2004.
- [kong2005] Kong X. and Gosselin C.M. Type synthesis of 4-dof SP-equivalent parallel manipulators: a virtual-chain approach. In *Computational Kinematics*, Cassino, May, 4-6, 2005.
- [kong2005-1] Kong X. and Gosselin C.M. Type synthesis of 5-dof parallel manipulators based on screw theory. *J. of Robotic Systems*, 22(10):535–547, 2005.
- [kong2006] Kong X. and Gosselin C.M. Type synthesis of three-dof UP-equivalent parallel manipulators. In *ARK*, pages 123–132, Ljubljana, June, 26-29, 2006.
- [kong2006-1] Kong X. and Gosselin C.M. Type synthesis of 4-dof SP-equivalent parallel manipulators: a virtual-chain approach. *Mechanism and Machine Theory*, 41(11):1306–1319, November 2006.
- [kong2007] Kong X. and Gosselin C.M. *Type synthesis of parallel mechanisms*. Springer Tracts in Advanced Robotics, Heidelberg, 2007. **Keywords:** structural synthesis.
- [kong2007-1] Kong X., Gosselin C.M., and Richard P.L. Type synthesis of parallel mechanisms with multiple operation modes. *ASME J. of Mechanical Design*, 129(7):595–601, June 2007.
- [kong2007-2] Kong X. and Gosselin C.M. Type synthesis of 3-dof linear translational parallel manipulators. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [kong2008] Kong X. Forward kinematics and singularity analysis of a 3-*RPP* planar parallel manipulator. In *ARK*, pages 29–38, Batz/mer, June, 23-26, 2008.
- [kong2008-1] Kong X. and Gosselin C.M. Type synthesis of 6-dof wrist-partitioned parallel manipulators. *ASME J. of Mechanical Design*, 130(6):062302–1/062302–8, June 2008.
- [kong2009] Kong X. Forward displacement analysis of a 3 – *RPR* planar parallel manipulator revisited. In *Computational Kinematics*, pages 69–76, Duisburg, May, 6-8, 2009.
- [kong2013] Kong X. Type synthesis of 3-dof parallel manipulators with both a planar operation mode and a spatial translational operation mode. *J. of Mechanisms and Robotics*, 5(4), November 2013.
- [kong2014] Kong X. and Li D. Condition for sub-6th order screw systems composed of three planar pencil of lines. In *ARK*, Ljubljana, June 29- July 3, 2014.
- [kong2015] Kong X. Kinematic analysis of a 6R single-loop overconstrained spatial mechanism for circular translation. *Mechanism and Machine Theory*, 96:323–333, February 2016.
- [kong2016] Kong X. and Jin Y. Type synthesis of 3-DOF multi-mode translational/spherical parallel mechanisms with lockable joints. *Mechanism and Machine Theory*, 96:323–333, February 2016.
- [kong2016-1] Kong X. Reconfiguration analysis of a 4-DOF 3-RER parallel manipulator with equilateral triangular base and moving platform. *Mechanism and Machine Theory*, 98:180–189, April 2016.
- [konishi2006] Konishi S. and others . Pneumatic micro hand and miniaturized parallel link robot for micro manipulation robot system. In *IEEE Int. Conf. on Robotics and Automation*, pages 1036–1041, Orlando, May, 16-18, 2006.
- [konya2012] Konya B. and others . The kinematics of a new reconfigurable parallel robot with six degrees of freedom. In *4th European Conf. on Mechanism Science (Eucomes)*, pages 43–51, Santander, September, 19-21, 2012.
- [kool-2000] Kool P. Serial/parallel robots with reciprocal leg structures. In *Workshop European Advanced Robotic Systems Development*, Salford, April, 12-14, 2000.
- [kool-2000-1] Kool P. Analysis of robot singularities with exterior algebra. In *Workshop European Advanced Robotic Systems Development*, Salford, April, 12-14, 2000.
- [korayem2007] Korayem M.H., Bamdad M., and Saadat M. Workspace analysis of cable-suspended robots with elastic cable. In *IEEE International Conference on Robotics and Biomimetics, 2007. ROBIO 2007*, pages 1942–1947, 2007.

- [korayem2009] Korayem M.H. and Bamdad M. Dynamic load-carrying capacity of cable-suspended parallel manipulators. *Int. J. of Advanced Manufacturing Technology*, 44(7-8):829–840, October 2009.
- [korayem2010] Korayem M.H., Tourajizadeh H., and Bamdad M. Dynamic load carrying capacity of flexible cable suspended robot: robust feedback linearization control approach. *J. of Intelligent and Robotic Systems*, 60(3-4):341–363, September 2010.
- [korayem2010-1] Korayem M.H. and Bamdad M. Stiffness modeling and stability analysis of cable-suspended manipulators with elastic cable for maximum load determination. *Kuwait J. Sci. Eng.*, 37(1b):181–201, 2010.
- [korayem2011] Korayem M.H. and Tourajizadeh H. Maximum DLCC of spatial cable robot for a predefined trajectory within the workspace using closed loop optimal control approach. *J. of Intelligent and Robotic Systems*, 63:75–99, 2011.
- [korayem2012] Korayem M.H. and others . Analytical design of optimal trajectory with dynamic load-carrying capacity for cable-suspended manipulator. *The International Journal of Advanced Manufacturing Technology*, 60:317–327, 2012.
- [korayem2013] Korayem M.H. and others . Experimental results for the flexible joint cable-suspended manipulator ICaSbot. *Robotica*, 31(6):887–904, September 2013.
- [korayem2013-1] Korayem M.H. and others . Design and manufacturing the torque gauge of ICaSbot and implementing its data transfer protocol. *Int J Advanced Design and Manufacturing Technology*, 6(2), June 2013.
- [korayem2014] Korayem M.H. and others . A novel method for recording the position and orientation of the end effector of a spatial cable-suspended robot and using for closed-loop control. *The International Journal of Advanced Manufacturing Technology*, 72:739–755, 2014.
- [korayem2014-1] Korayem M.H. and others . Optimal motion planning of non-linear dynamic systems in the presence of obstacles and moving boundaries using SDRE: application on cable-suspended robot. *International Journal of Advanced Robotic Systems*, 2014.
- [korayem2015] Korayem M.H. and others . Optimal regulation of a cable robot in presence of obstacle using optimal adaptive feedback linearization approach. *Robotica*, 33(4):933–952, May 2015.
- [korayem2015-1] Korayem M.H., Taherifar M., and Tourajizadeh H. Compensating the flexibility uncertainties of a cable suspended robot using smc approach. *Robotica*, 33(3):578–598, 2015.
- [korayem2018] Korayem M.H., Yousefzadeh M., and Kian S. Precise end-effector pose estimation in spatial cable-driven parallel robots with elastic cables using data fusion methods. *Measurement*, 130:177–190, 2018.
- [korayem2020] Korayem M.H., Yousefzadeh M., and ourajizadeh H. Optimal control of a wheeled mobile cable-driven parallel robot ICaSbot with viscoelastic cables. *Robotica*, 38:1513–1537, 2020.
- [korkmaz2014] Korkmaz O. and Ider S.K. Hybrid force and motion control of flexible joint parallel manipulators using inverse dynamics approach. *Advanced Robotics*, 28:1221–1230, 2014.
- [koseki2000] Koseki Y. and others . Kinematic analysis of translational 3-dof micro-parallel mechanism using matrix method. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Takamatsu, Japan, October 30–November 5, 2000.
- [kosinska2002] Kosinska A., Galicki M., and Kedzior K. Determination of parameters of 3-dof spatial orientation manipulators for a specific workspace. *Robotica*, 20(2):179–183, March 2002.
- [kosinska2003] Kosinska A., Galicki M., and Kedzior K. Designing and optimization of parameters of Delta-4 parallel manipulator for a given workspace. *J. of Robotic Systems*, 20(9):539–548, 2003.
- [kosinska2003-1] Kosinska A., Galicki M., and Kedzior K. Design of parameters of parallel manipulators for a specified workspace. *Robotica*, 21(5):575–579, December 2003.
- [kossowski2002] Kossowski C. and L. Notash. CAT4 (cable actuated truss—4 degrees of freedom): A novel 4 dof cable actuated parallel manipulator. *J. of Robotic Systems*, 19(2):605–615, December 2002.

- [kosuge93] Kosuge K. and others . Input/output force analysis of parallel link manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 714–719, Atlanta, May, 2-6, 1993.
- [kosuge93-1] Kosuge K. and others . Computation of parallel link manipulator dynamics. In *Int. Conf. on Indus. Electronics, Control and Instrumentation (IECON)*, pages 1672–1677, Hawaii, November, 15-19, 1993.
- [kosuge96] Kosuge K. and others . Force control of parallel link manipulator with hydraulic actuators. In *IEEE Int. Conf. on Robotics and Automation*, pages 305–310, Minneapolis, April, 24-26, 1996.
- [kotlarski2008] Kotlarski J., Abellatif H., and Heimann B. Improving the pose accuracy of a planar  $3\overline{R}RR$  parallel manipulator using kinematic redundancy and optimized switching patterns. In *IEEE Int. Conf. on Robotics and Automation*, pages 3863–3868, Pasadena, May, 19-23, 2008.
- [kotlarski2009] Kotlarski J. and others . New interval-based approach to determine the guaranteed singularity-free workspace of parallel robots. In *IEEE Int. Conf. on Robotics and Automation*, pages 1256–1261, Kobe, May, 14-16, 2009.
- [kotlarski2010] Kotlarski J. and others . Optimization strategies for additional actuators of kinematically redundant parallel kinematic machines. In *IEEE Int. Conf. on Robotics and Automation*, pages 656–661, Anchorage, May, 3-8, 2010.
- [kotlarski2011] Kotlarski J., Heimann B., and Ormaier T. Experimental validation of the influence of kinematic redundancy on the pose accuracy of parallel kinematic machines. In *IEEE Int. Conf. on Robotics and Automation*, Shanghai, May, 9-13, 2011.
- [kovecses2003] Kovecses J., Piedboe ub J-C., and Lange C. Dynamic modeling and simulation of constrained robotic systems. *IEEE/ASME Trans. on Mechatronics*, 8(2):165–177, June 2003.
- [kozak2001] Kozak K., Ebert-Uphoff I., and Singhose W. Analysis of varying natural frequencies and damping ratio of a sample parallel manipulator throughout its workspace using linearized equation of motion. In *ASME Design Engineering Technical Conference*, Pittsburgh, September, 9-12, 2001.
- [kozak2004] Kozak K. and others . Locally linearized dynamic analysis of parallel manipulators and application of input shaping to reduce vibrations. *ASME J. of Mechanical Design*, 126(1):156–168, January 2004.
- [kozak2006] Kozak K. and others . Static analysis of cable-driven manipulators with non-negligible cable mass. *IEEE Trans. on Robotics*, 22(3):425–433, June 2006.
- [kozuka2012] Kozuka H. and others . A bio-inspired compliant parallel mechanism for high precision robot. In *IEEE Int. Conf. on Robotics and Automation*, pages 3122–3127, Saint Paul, May, 14-18, 2012.
- [kraus2011] Kraus W. and others . System identification and cable force control for a cable-driven parallel robot with industrial servo drives. In *IEEE Int. Conf. on Robotics and Automation*, Shanghai, May, 9-13, 2011.
- [kraus2012] Kraus W. and Pott A. Scenario-based dimensionning of the actuator of parallel cable-driven robots. In *4th European Conf. on Mechanism Science (Eucomes)*, pages 131–139, Santander, September, 19-21, 2012.
- [kraus2012-1] Kraus W., Miermeister P., and Pott A. Investigation of the influence of elastic cables on the force distribution of a parallel cable-driven robot. In *1st Int. Conf. on cable-driven parallel robots (CableCon)*, Stuttgart, September, 3-4, 2012.
- [kraus2013] Kraus W. and others . Load identification and compensation for a cable-driven parallel robot. In *IEEE Int. Conf. on Robotics and Automation*, pages 2470–2475, Karlsruhe, May, 6-10, 2013.
- [kraus2014] Kraus W. and others . System identification and cable force control for a cable-driven parallel robot with industrial servo drives. In *IEEE Int. Conf. on Robotics and Automation*, pages 5921–5926, Hong-Kong, May 31- June 7, 2014.
- [kraus2014-1] Kraus W., Miermeister P., and Pott A. Hybrid position/force control of a cable-driven parallel robot with experimental evaluation. In *5th European Conf. on Mechanism Science (Eucomes)*, pages 553–561, Guimares, September, 16-19, 2014.

- [kraus2015] Kraus W., Kessler M., and Pott A. Pulley friction compensation for winch-integrated cable force measurement and verification on a cable-driven parallel robot. In *IEEE Int. Conf. on Robotics and Automation*, pages 1627–1632, Seattle, May, 26-30, 2015.
- [kraus2015-1] Kraus W. *Force control of cable-driven parallel robots*. Ph.D. Thesis, Universität Stuttgart, Stuttgart, 2015. **Keywords:** control.
- [kraus2016] Kraus W., Spiller A., and Pott A. Energy efficiency of cable-driven parallel robots. In *IEEE Int. Conf. on Robotics and Automation*, Stockholm, May, 16-20, 2016.
- [krefft2006] Krefft M., Last P., and Hesselbach J. New concepts to adapt the PKM performance to application requirements. In *5th Chemnitzer Parallelkinematik Seminar*, pages 547–564, Chemnitz, April, 25-26, 2006.
- [krefft2006-1] Krefft M. and Hesselbach J. The dynamic optimization of PKM. In *ARK*, pages 339–348, Ljubljana, June, 26-29, 2006.
- [kreidler2000] Kreidler V. Development and software methods for parallel kinematic machine accuracy. In *2nd Chemnitzer Parallelkinematik Seminar*, pages 241–256, Chemnitz, April, 12-13, 2000.
- [krishnamurthy2008] Krishnamurthy P. and Khorrami F. TriM: an ultra-accurate high-speed six degree-of-freedom manipulator using planar stepper motors. *J. of Intelligent and Robotic Systems*, 51(2):137–157, February 2008.
- [krishnaprasad94] Krishnaprasad P.S. and Tsakiris D.P. Nonholonomic variable geometry truss assemblies. I: motion control. In *4th IFAC Symp. on Robot Control, Syroco*, Capri, September, 19-21, 1994.
- [krut-2003-phd] Krut S. *Contribution à l'étude des robots parallèles légers, 3T-1R et 3T-2R, à forts débattements angulaires*. Ph.D. Thesis, Université Montpellier II, Montpellier, November, 13, 2003. **Keywords:** 4 dof robot, 5 dof robot.
- [krut2002] Krut S. and others . Twice: a tilting angle amplification system for parallel robots. In *IEEE Int. Conf. on Robotics and Automation*, pages 4108–4113, Washington, May, 11-15, 2002.
- [krut2003] Krut S. and others . I4: a new parallel mechanism for Scara motions. In *IEEE Int. Conf. on Robotics and Automation*, pages 1875–1880, Taipei, September, 14-19, 2003.
- [krut2003-1] Krut S. and others . Eureka: A new 5-degree-of-freedom redundant parallel mechanism with high tilting capabilities. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Las Vegas, October 2003.
- [krut2004] Krut S. and others . A high-speed parallel robot for Scara motion. In *IEEE Int. Conf. on Robotics and Automation*, pages 4109–4115, New Orleans, April, 28-30, 2004.
- [krut2004-1] Krut S., Company O., and Pierrot F. Velocity performance indices for parallel mechanisms with actuation redundancy. *Robotica*, 22(2):129–139, March 2004.
- [krut2004-2] Krut S., Company O., and Pierrot F. Force performance indexes for parallel mechanisms with actuation redundancy, especially for parallel wire-driven manipulators. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 3936–3941, Sendai, September 28- October 2, 2004.
- [krut2006] Krut S., Pierrot F., and Company O. On PKM with articulated traveling plate and large tilting angles. In *ARK*, pages 445–454, Ljubljana, June, 26-29, 2006.
- [krut2008] Krut S. and others . A parallel cable-driven crane for Scara-motions. In *ASME Design Engineering Technical Conference*, New-York, August, 3-6, 2008.
- [ku99] Ku D.M. Direct displacement analysis of a Stewart platform mechanism. *Mechanism and Machine Theory*, 34(3):453–465, April 1999.
- [kubler2005] Kübler L., Henninger C., and Eberhard P. Multi-criteria optimization of a hexapod machine. *Multibody System Dynamics*, 14:225–250, 2005.
- [kucuk2013] Kucuk S. Energy minimization for 3-RRR fully planar parallel manipulator using particle swarm optimization. *Mechanism and Machine Theory*, 62:129–149, April 2013.

- [kucuk2017] Kucuk S. Optimal trajectory generation algorithm for serial and parallel manipulators. *Robotics and Computer-Integrated Manufacturing*, 48:219–232, December 2017.
- [kuhfuss2002] Kuhfuss B. and Schenck C. Optimized hybrid machine structures, a new development approach. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 213–225, Chemnitz, April, 23-25, 2002.
- [kuhfuss2006] Kuhfuss B., Schenck C., and Allers S. Static calibration of a Tripod by neural network error identification. In *5th Chemnitzer Parallelkinematik Seminar*, pages 603–616, Chemnitz, April, 25-26, 2006.
- [kuhlbusch99] Kuhlbusch W. and others . TriPlanar-A new process-machine-type developed by means of the mechatronic design. In *IEEE/ASME Int. Conf. on Advanced Intelligent Mechatronics*, pages 514–519, Atlanta, September, 19-23, 1999.
- [kukula2009] Kukula P. and Valasek M. Kinematical solution by structure approximation. In *Computational Kinematics*, Duisburg, May, 6-8, 2009.
- [kumar-p-2015] Kumar P R., Chalanga A., and Bandyopadhyay B. Smooth integral sliding mode controller for the position control of Stewart platform. *ISA Transactions*, 58:543–551, September 2015.
- [kumar-s2018] Kumar S. and others . Kinematic analysis of a novel parallel 2SPRR+1U ankle mechanism in humanoid robot. In *ARK*, Bologna, July, 1-5, 2018.
- [kumar-s2019] Kumar S. and others . Design and kinematic analysis of the novel almost spherical parallel mechanism active ankle. *J. of Intelligent and Robotic Systems*, 95:303–325, 2019.
- [kumar-s2019-1] Kumar S. and others . Model simplification for dynamic control of series-parallel hybrid robots - a representative study on the effects of neglected dynamics. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Macau, November, 4-8, 2019.
- [kumar-sg-2009] Kumar S.G., Nagarajan T., and Srinivasa Y.G. Characterization of reconfigurable Stewart platform for contour generation. *Robotics and Computer-Integrated Manufacturing*, 25(4-5):721–731, August 2009.
- [kumar90] Kumar V. Characterization of workspaces of parallel manipulators. In *ASME Proc. of the 21th Biennial Mechanisms Conf.*, pages 321–329, Chicago, September, 16-19, 1990.
- [kumar92] Kumar V. Characterization of workspaces of parallel manipulators. *ASME J. of Mechanical Design*, 114(3):368–375, September 1992.
- [kumar92-1] Kumar V. Instantaneous kinematics of parallel-chain robotic mechanisms. *ASME J. of Mechanical Design*, 114(3):349–358, September 1992.
- [kurniawan2016] Kurniawan R. and others . Combined use of modified Hough transformation, random sample consensus and linear least square to extract the normal parameterization of a straight line: an application for cable driven parallel robots. In *3rd Int. Conf. on System-integrated Intelligence*, pages 382–388, 2016.
- [kurtz90] Kurtz R.L. Kinematic and optimization of a parallel robotic wrist mechanism with redundancy. Research Report TR-CIM-90-2, Université McGill, Montréal, January 1990.
- [kurtz91] Kurtz R.L. and Hayward V. Dexterity measure for tendon actuated parallel mechanisms. In *ICAR*, pages 1141–1146, Pise, June, 19-22, 1991.
- [kurtz92] Kurtz R.L. and Hayward V. Multiple-goal kinematic optimization of a parallel spherical mechanism with actuator redundancy. *IEEE Trans. on Robotics and Automation*, 8(5):644–651, October 1992.
- [kwon-o-2004] Kwon O. and others . Serially-linked parallel leg design for biped robots. In *2nd Int. Conf. on Autonomous Robots and Agents*, Palmerston North, December, 13-15, 2004.
- [kwon98] Kwon D-S. and others . Microsurgical telerobot system. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 945–950, Victoria, October 1998.
- [kyatkin99] Kyatkin A.B. and Chirikjian G.S. Synthesis of binary manipulators using the Fourier transform on the Euclidean group. *ASME J. of Mechanical Design*, 121(1):9–14, March 1999.

- [lacaze97] Lacaze A., Tasoluk C., and Meystel A. Solving the forward kinematics problem for the Stewart platform by focusing attention and searching. In *Int. Conf. on Intelligent Systems and Semiotics*, pages 477–483, Gaithersburg, September, 22-25, 1997.
- [lacombe2022] Lacombe J. and Gosselin C. Singularity analysis of a kinematically redundant (6+2)-dof parallel mechanism for general configurations. *Mechanism and Machine Theory*, 176, 2022.
- [lafmejani2018] Lafmejani A.S., Masouleh M.T., and Kalhor A. Trajectory tracking control of a pneumatically actuated 6-dof Gough–Stewart parallel robot using backstepping-sliding mode controller and geometry-based quasi forward kinematic method. *Robotics and Computer-Integrated Manufacturing*, 54:96–114, 2018.
- [lafourcade-2004-phd] Lafourcade P. *Contribution à l’étude de manipulateurs parallèles à câbles*. Ph.D. Thesis, École Nationale Supérieure de l’Aéronautique et de l’Espace, Toulouse, December, 9, 2004. **Keywords:** wire robot, workspace, applications.
- [lafourcade2002] Lafourcade P., Llibre M., and Reboulet C. Design of a parallel wire-driven manipulator for wind tunnels. In *Workshop on Fundamental Issues and Future Research Directions for Parallel Mechanisms and Manipulators*, Québec, October, 3-4, 2002.
- [lafourcade2003] Lafourcade P. and Verhoeven R. Une nouvelle architecture, fortement redondante, pour un manipulateur à câbles au volume de travail étendu. In *16eme Congrès Français de Mécanique*, Nice, September, 1-5, 2003.
- [lahouar2007] Lahouar S. and others . Collision free path-planning for cable driven parallel robots. In *2nd Int. Congress, Design and Modelling of mechanical systems*, Monastir, March, 19-21, 2007.
- [lahouar2008] Lahouar S. and others . Singularity free path planning for parallel robots. In *ARK*, Batz/mer, June, 23-26, 2008.
- [lahouar2009] Lahouar S. and others . Collision free path-planning for cable driven parallel robots. *Robotics and Autonomous Systems*, 57(11):1083–1093, November 2009.
- [lai2011] Lai L. and others . Design of a decoupled 2-dof translational parallel micro-positioning stage. In *IEEE Int. Conf. on Robotics and Automation*, pages 5070–5075, Shanghai, May, 9-13, 2011.
- [lai208] Lai Y-L., Liao C-C., and Ghao Z-G. Inverse kinematics for a novel hybrid parallel–serial five-axis machine tool. *Robotics and Computer-Integrated Manufacturing*, 50:63–79, 2018.
- [laliberte99] Laliberté T., Gosselin C.M., and Côté G. Rapid prototyping of mechanisms. In *10th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 959–964, Oulu, June, 20-24, 1999.
- [laliberte2024] Laliberté T., Abdallah M., and Gosselin C.M. A backdrivable 6-dof parallel robot for sensorless dynamically interactive tasks. *Robotics and Computer-Integrated Manufacturing*, 86, April 2024.
- [lallemand97] Lallemand J-P., Goudali A., and Zeghloul S. The 6-dof 2-Delta parallel robot. *Robotica*, 15(4):407–416, July - August , 1997.
- [lalo2012] Lalo W., Vruckmann T., and Schramm D. Optimal control for a wire-based storage retrieval machine. In *4th European Conf. on Mechanism Science (Eucomes)*, pages 631–639, Santander, September, 19-21, 2012.
- [lamaury2012] Lamaury J. and others . Design and control of a redundant suspended cable-driven parallel robot. In *ARK*, pages 237–244, Innsbruck, June, 25-28, 2012.
- [lamaury2012-1] Lamaury J. and Gouttefarde M. A tension distribution method with improved computational efficiency. In *1st Int. Conf. on cable-driven parallel robots (CableCon)*, Stuttgart, September, 3-4, 2012.
- [lamaury2013] Lamaury J. and others . Dual-space adaptive control of redundantly actuated cable-driven parallel robots. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 4879–4886, Tokyo, November, 3-7, 2013.
- [lamaury2013-1] Lamaury J. and Gouttefarde M. Control of a large redundantly actuated cable-suspended parallel robot. In *IEEE Int. Conf. on Robotics and Automation*, Karlsruhe, May, 6-10, 2013.

- [lamaury2013-phd] Lamaury J. *Contribution à la commande des robots parallèles à câbles à redondance d'actionnement*. Ph.D. Thesis, Université de Montpellier, Montpellier, October, 8, 2013. **Keywords:** wire robot, redundant robot, control.
- [lambert-c2006] Lambert C. and Nahon M. Study of a multitethered aerostat system: experimental observations and model validation. *Journal of Aircraft*, 43(4), 2006.
- [lambert-p2012] Lambert P. and Herder J.L. Mobility analysis of non series-parallel mechanisms. In *4th European Conf. on Mechanism Science (Eucomes)*, pages 63–71, Santander, September, 19–21, 2012.
- [lambert-p2016] Lambert P. and Herder J.L. Parallel robots with configurable platforms: Fundamental aspects of a new class of robotic architectures. *Proc. Instn Mech Engrs, Part C: J. Mechanical Engineering Science*, 230(3):463–472, February 2016.
- [lambert-p2019] Lambert P. and Herder J.L. A 7-dof redundantly actuated parallel haptic device combining 6-dof manipulation and 1-dof grasping. *Mechanism and Machine Theory*, 134:349–364, 2019.
- [lambert-p2020] Lambert P., Da Cruz L., and Bergels C. Design, modelling, and implementation of a 7-dof cable-driven haptic device with a configurable cable platform. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Las Vegas, October, 25–29, 2020.
- [lambert87] Lambert M. Polyarticulated retractile mechanism, March, 24, 1987. United States Patent n° 4,651,589, Société Becart S.A. **Keywords:** mechanical architecture, 3 dof robot, patent.
- [lamine2014] Lamine H., Bennour S., Merlet J-P., and Romdhane L. Workspace evaluation for a cable based gait trainer robot. In *Troisième Congrès Tunisien de Mécanique*, Sousse, March, 24–26, 2014.
- [lamine2016] Lamine H., Bennour S., and Romdhane L. Design of cable-driven parallel manipulators for a specific workspace using interval analysis. *Advanced Robotics*, 30:585–594, 2016.
- [lamine2019] Lamine H., Romdhane L., and Bennour S. Parametric dynamic analysis of walking within a cable-based gait trainer. *Robotica*, 37:1225–1239, 2019.
- [lamine2020] Lamine H. and others . Design-to-workspace synthesis of a cable robot used in legs training machine. *Robotica*, 38:1703–1714, 2020.
- [lampariello2006] Lampariello R. and others . Reactionless control for two manipulators mounted on a cable-suspended platform. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Beijing, October, 9–15, 2006.
- [lande81] Lande M.A. and David R.J.P. Articulation for manipulator arm, November, 17, 1981. United States Patent n° 4,300,362, Association des Ouvriers en Instruments de Précision, Paris. **Keywords:** mechanical architecture, 3 dof robot, patent.
- [landsberger85] Landsberger S.E. and Sheridan T.B. A new design for parallel link manipulator. In *Proc. Systems, Man and Cybernetics Conf.*, pages 812–814, Tucson, 1985.
- [landsberger92] Landsberger S.E. and Shanmugasundram A.P. Workspace of parallel link crane. In *IMACS/SICE Int. Symp. on Robotics, Mechatronics, and Manufacturing Systems*, pages 479–486, Kobe, September, 16–20, 1992.
- [landsberger92-1] Landsberger S.E. and Sheridan T.B. A minimal, minimal linkage: the tension-compression parallel link manipulator. In *IMACS/SICE Int. Symp. on Robotics, Mechatronics, and Manufacturing Systems*, pages 493–500, Kobe, September, 16–20, 1992.
- [lang2001] Lang J., Mick S., and Röschel O. The rigidity rate of positions of Stewart-Gough platforms. *Journal for Geometry and Graphics*, 5(2):121–132, 2001.
- [laribi2007] Laribi M.A., Romdhane L., and Zeghloul S. Analysis and dimensional synthesis of the DELTA robot for a prescribed workspace. *Mechanism and Machine Theory*, 42(7):859–870, July 2007.
- [laribi2007-1] Laribi M.A., Romdhane L., and Zeghloul S. Synthesis of RAF parallel robot for prescribed workspace. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18–21, 2007.



- [laribi2008] Laribi M.A., Romdhane L., and Zeghloul S. *Parallel manipulators, Towards new applications*, chapter Advanced synthesis of the DELTA parallel robot for a specified workspace, pages 207–224. ITECH, April 2008. **Keywords:** 3 dof robot,workspace,design,optimal design.
- [laribi2017] Laribi M.A., Mlika A., Romdhane L., and Zeghloul S. Robust optimization of the RAF parallel robot for a prescribed workspace. In *Computational Kinematics*, Poitiers, 2017.
- [laroche2012] Laroche E.and others. A preliminary study for  $H_\infty$  control of parallel cable-driven manipulators. In *1st Int. Conf. on cable-driven parallel robots (CableCon)*, Stuttgart, September, 3-4, 2012.
- [larochelle95] Larochelle P.M. Design of 3-dof spherical robotic mechanisms. In *9th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 1826–1830, Milan, August 30- September 2, 1995.
- [larsonneur92] Larssonneur R., Arai T., and Jaya Y.M. A six-degree-of-freedom micro-manipulator using a piezoelectrically driven parallel-link mechanism. In *10th Robotics Society Japan Annual Conf.*, pages 863–864, Kanazawa, November 1992.
- [laryushkin2012] Laryushkin P. and Glazunov V. A new 3-dof translational parallel manipulator: Kinematics, dynamics and workspace analysis. In *RoManSy*, Paris, June, 12-15, 2012.
- [laryushkin2019] Laryushkin P., Glazunov V., and Erastova K. On the maximization of joint velocities and generalized reactions in the workspace and singularity analysis of parallel mechanisms. *Robotica*, 37:675–690, 2019.
- [lasker2013] Lasker L. and Or Y. Path planning of planar parallel manipulator with joint clearance. In *4th Israeli Conf. onRobotics*, Tel-Aviv, November, 19-20, 2013.
- [laski2015] Laski P.A., Takosoglu J.E., and Blasiak S. Design of a 3-dof tripod electro-pneumatic parallel manipulator. *Robotics and Autonomous Systems*, 72:59–70, October 2015.
- [last2006] Last P. and Hesselbach J. A new calibration strategy for a class of parallel mechanism. In *ARK*, pages 331–338, Ljubljana, June, 26-29, 2006.
- [last2007] Last P. and others . A general approach to solve the singular kinematic problem. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 3943–3949, San Diego, September, 22-26, 2007.
- [last2007-1] Last P. and others . Singularity based calibration of 3-dof fully parallel planar manipulators. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [lau2011] Lau D., Oetomo D., and Halgamuge S.K. Wrench-closure workspace generation for cable driven parallel manipulators using a hybrid analytical-numerical approach. *ASME J. of Mechanical Design*, 133(7):071004–1/9, July 2011.
- [lau2012] Lau D. and others . On the task specific evaluation and optimisation of cable-driven manipulators. In *Advances in reconfigurable mechanisms and robots I*, pages 707–716. Springer, 2012. **Keywords:** wire robot,optimal design.
- [lau2013] Lau D., Oetomo D., and Halgamuge K. Generalized modeling of multilink cable-driven manipulators with arbitrary routing using the cable-routing matrix. *IEEE Trans. on Robotics*, 29(5):1102–1113, October 2013.
- [lau2014] Lau D. and others . Cable function analysis for the musculoskeletal static workspace of a human shoulder. In *2nd Int. Conf. on cable-driven parallel robots (CableCon)*, Duisburg, August, 24-27, 2014.
- [lau2015] Lau D. and others . Musculoskeletal static workspace analysis of the human shoulder as a cable-driven robot. *IEEE/ASME Trans. on Mechatronics*, 210(2), April 2015.
- [lau2016] Lau D., Eden J., Tan Y., and Oetomo D. CASPR: A comprehensive cable-robot analysis and simulation platform for the research of cable-driven parallel robots. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 3004–3011, Daejeon, October, 9-14, 2016.
- [lau2017] Lau D. Initial length and pose calibration for cable-driven parallel robots with relative lengths feedback. In *3rd Int. Conf. on cable-driven parallel robots (CableCon)*, Québec, 2017.
- [lauffer96] Lauffer J.P. and others . Milling machine for the 21st century, goals, approach, characterization and modeling. *Proc. of the SPIE*, 2721:326–340, 1996.

- [lauzier2009] Lauzier N., Grenier M., and Gosselin C. 2 dof cartesian force limiting device for safe physical human-robot interaction. In *IEEE Int. Conf. on Robotics and Automation*, pages 253–258, Kobe, May, 14-16, 2009.
- [lauzier2010] Lauzier N. and Gosselin C. 3-DOF cartesian force limiting device based on the Delta architecture for safe physical human-robot interaction. In *IEEE Int. Conf. on Robotics and Automation*, pages 3420–3425, Anchorage, May, 3-8, 2010.
- [lazard91] Lazard D. Stewart platform, October, 17, 1991. Communication personnelle. **Keywords:** forward kinematics.
- [lazard92] Lazard D. Stewart platform and Gröbner basis. In *ARK*, pages 136–142, Ferrare, September, 7-9, 1992.
- [lazard93] Lazard D. Generalized Stewart Platform: How to compute with rigid motions? In *IMACS Symp. on Symbolic Computation*, pages 85–88, Lille, June, 14-17, 1993.
- [lazard93-1] Lazard D. On the representation of rigid-body motions and its application to generalized platform manipulators. In J. Angeles P. Kovacs, G. Hommel, editor, *Computational Kinematics*, pages 175–182. Kluwer, 1993. **Keywords:** forward kinematics.
- [lazard94] Lazard D. and Merlet J-P. The (true) Stewart platform has 12 configurations. In *IEEE Int. Conf. on Robotics and Automation*, pages 2160–2165, San Diego, May, 8-13, 1994.
- [le2017] Le M.N., Inuzuka H., and Sakai M. Graphical simulator for teaching robot with parallel wire type teaching device. In *3rd International Conference on Control, Automation and Robotics*, 2017.
- [lealnaranjo2019] Leal-Naranjo J-A. and others . Comparison of metaheuristic optimization algorithms for dimensional synthesis of a spherical parallel manipulator. *Mechanism and Machine Theory*, 140:586–600, 2019.
- [lebesgue67] Lebesgue H. Octaèdre articulé de Bricard. *L’enseignement mathématique*, (13):150–160, 1967.
- [leblond98] Leblond M. and Gosselin C.M. Static balancing of spatial and planar parallel manipulators with prismatic actuators. In *ASME Design Engineering Technical Conferences*, Atlanta, September, 13-16, 1998.
- [lebre93] Lebre G., Liu K., and Lewis F. Dynamic analysis and control of a Stewart platform manipulator. *J. of Robotic Systems*, 10(5):629–655, July 1993.
- [lee-cc-2006] Lee C-C. and Hervé J.M. Translational parallel manipulators with doubly planar limbs. *Mechanism and Machine Theory*, 41(4):433–455, April 2006.
- [lee-cc-2007] Lee C-C. and Hervé J.M. Cartesian parallel manipulators with pseudoplanar limbs. *ASME J. of Mechanical Design*, 129(12):1256–1264, December 2007.
- [lee-cc-2009] Lee C-C. and Hervé J.M. On some applications of primitive Schönflies-motion generators. *Mechanism and Machine Theory*, 44(12):2153–2163, December 2009.
- [lee-cc-2009-1] Lee C-C. and Hervé J.M. Uncoupled actuation of overconstrained 3T-1R hybrid parallel manipulators. *Robotica*, 27(1):103–117, January 2009.
- [lee-cc-2009-2] Lee C-C. and Hervé J.M. Type synthesis of primitive Schönflies-motion generators. *Mechanism and Machine Theory*, 44(10):1980–1997, October 2009.
- [lee-cc-2009-3] Lee C-C. and Hervé J.M. Uncoupled 6-dof tripods via group theory. In *Computational Kinematics*, Duisburg, May, 6-8, 2009.
- [lee-cc-2010] Lee C-C. and Hervé J.M. Mechanical generators of 2-dof translation along a ruled surface. In *ARK*, pages 73–80, Piran, June 28- July 1, 2010.
- [lee-cc-2011] Lee C-C. and Hervé J.M. Isoconstrained parallel generators of Schoenflies motion. *J. of Mechanisms and Robotics*, 3(2), March 2011.
- [lee-cc-2012] Lee C-C. and Hervé J.M. Parallel mechanism, generating 3-dof finite translation and (2 or 1)-dof infinitesimal rotation. *Mechanism and Machine Theory*, 51:185–194, 2012.
- [lee-ds-96] Lee D.S. and Chirikjian G.S. A combinatorial approach to trajectory planning for binary manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 2749–2754, Minneapolis, April, 24-26, 1996.

- [lee-ds-96-1] Lee D.S. and Chirikjian G.S. An efficient method for computing the forward kinematics of binary manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 1012–1017, Minneapolis, April, 24-26, 1996.
- [lee-e-99] Lee E. and Mavroidis C. Rigid body displacement analysis using the method of loci and its application on the direct kinematics of hybrid serial-parallel mechanisms. In *10th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 513–522, Oulu, June, 20-24, 1999.
- [lee-hy-93] Lee H-Y. and Roth B. A closed-form solution of the forward displacement analysis of a class of in-parallel mechanisms. In *IEEE Int. Conf. on Robotics and Automation*, pages 720–724, Atlanta, May, 2-6, 1993.
- [lee-j-96] Lee J. and Duffy J. An investigation of a quality index for the stability of in-parallel platform devices. In *11th RoManSy*, pages 27–35, Udine, July, 1-4, 1996.
- [lee-j-99] Lee J., Duffy J., and Keler M. The optimum quality index for the stability of in-parallel planar platform devices. *ASME J. of Mechanical Design*, 121(1):15–20, March 1999.
- [lee-j98] Lee J., Duffy J., and Hunt K.H. A practical quality index based on the octahedral manipulator. *Int. J. of Robotics Research*, 17(10), 1998.
- [lee-jd-93] Lee J.D. and Geng Z. A dynamic model of a flexible Stewart platform. *Computers & Structures*, 48(3):367–374, August, 3, 1993.
- [lee-jd-93-1] Lee J.D. and Geng Z. Modeling and control of a flexible Stewart platform. In *IFAC 12th Triennial World Congress*, pages 441–444, Sydney, July, 18-23, 1993.
- [lee-jh-2004] Lee J-H. and Hong K-S. Kinematic optimal design of a Paramill: a multi-SP device. *J. of Robotic Systems*, 21(6):345–359, 2004.
- [lee-mk-95] Lee M.K. Design of a high stiffness machining robot arm using double parallel mechanism. In *IEEE Int. Conf. on Robotics and Automation*, pages 234–240, Nagoya, May, 25-27, 1995.
- [lee-mk-98] Lee M.K. and Park K.W. Direct kinematics of a double parallel robot arm for real time velocity control. *KSME Int. Journal*, 12(4):525–535, 1998.
- [lee-mk-99] Lee M.K. and Park K.W. Kinematics and dynamics analysis of a double parallel manipulator for enlarging workspace and avoiding singularities. *IEEE Trans. on Robotics and Automation*, 15(6):1024–1034, December 1999.
- [lee-mk-2000] Lee M.K. and Park K.W. Workspace and singularity analysis of a double parallel manipulator. *IEEE/ASME Trans. on Mechatronics*, 5(4):367–375, December 2000.
- [lee-pc2016] Lee P-C. and Lee J-J. On the kinematics of a new parallel mechanism with Schonflies motion. *Robotica*, 34(9):2056–2070, September 2016.
- [lee-s-93] Lee S. and Kim S. Kinematic analysis of generalized parallel manipulator systems. In *32nd Conf. on Decision and Control*, pages 1097–1102, San Antonio, December, 15-17, 1993.
- [lee-s-94] Lee S. and Kim S. Kinematic feature analysis of parallel manipulator systems. In *IEEE Int. Conf. on Robotics and Automation*, pages 77–82, San Diego, May, 8-13, 1994.
- [lee-s-2011] Lee S. and others . Experimental verification of antagonistic stiffness planning for a planar parallel mechanism with 2-dof force redundancy. *Robotica*, 29(4):547–554, July 2011.
- [lee-sh2001] Lee S-H. and others . Analysis on impact propagation of docking platform for spacecrafts. In *IEEE Int. Conf. on Robotics and Automation*, pages 413–420, Seoul, May, 23-25, 2001.
- [lee-sh2001-1] Lee S.H., Yi B-J., and Kim S.H. Modeling and analysis on the internal impact of a Stewart platform used for spacecraft docking. *Advanced Robotics*, 15(7):763–777, 2001.
- [lee-sh2002] Lee S-H. and others . Workspace and force-moment transmission of a variable arm type parallel manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 3666–3671, Washington, May, 11-15, 2002.

- [lee-sh2006] Lee S-H. and others . Analysis of two 3-dof parallel mechanisms with constrained stewart platform structure. In *IEEE Int. Conf. on Robotics and Automation*, pages 4227–4233, Orlando, May, 16-18, 2006.
- [lee-tc-2007] Lee T-C. and Perng M.H. Analysis of simplified position and 5-dof total orientation workspaces of a hexapod mechanism. *Mechanism and Machine Theory*, 42(12):1577–1600, December 2007.
- [lee-ty2001] Lee T-Y and Shim J-K. Elimination-based solution method for the forward kinematics of the general Stewart-Gough platform. In F.C. Park C.C. Iurascu, editor, *Computational Kinematics*, pages 259–267. EJK, May, 20-22, 2001. **Keywords:** forward kinematics.
- [lee-ty2001-1] Lee T-Y and Shim J-K. Forward kinematics of the general 6-6 Stewart platform using algebraic elimination. *Mechanism and Machine Theory*, 36(9):1073–1085, September 2001.
- [lee-ty2001-2] Lee T-Y and Shim J-K. Algebraic elimination-based real-time forward kinematics of the 6-6 Stewart platform with planar base and platform. In *IEEE Int. Conf. on Robotics and Automation*, pages 1301–1306, Seoul, May, 23-25, 2001.
- [lee-ty2003] Lee T-Y and Shim J-K. Improved dyalytic elimination algorithm for the forward kinematics of the general Stewart-Gough platform. *Mechanism and Machine Theory*, 38(6):563–577, June 2003.
- [lee-ws98] Lee W-S., Kim J-H., and J-H Cho. A driving simulator as a virtual reality tool. In *IEEE Int. Conf. on Robotics and Automation*, pages 71–76, Louvain, May, 18-20, 1998.
- [lee88] Lee K-M. and Shah D.K. Kinematic analysis of a three-degrees-of-freedom in-parallel actuated manipulator. *Int. J. of Robotics and Automation*, 4(3):354–360, June 1988.
- [lee88-1] Lee K-M. and Shah D.K. Dynamic analysis of a three-degrees-of-freedom in-parallel actuated manipulator. *Int. J. of Robotics and Automation*, 4(3):361–368, June 1988.
- [lee91] Lee K-M. and Arjunan S. A three-degrees-of freedom micromotion in-parallel actuated manipulator. *IEEE Trans. on Robotics and Automation*, 7(5):634–641, October 1991.
- [lee-d2012] Lee D., Kim J., and Seo T. Optimal design of 6-dof Eclipse mechanism based on task-oriented workspace. *Robotica*, 30(7):1041–1048, December 2012.
- [lee-dg2016] Lee D.G., Oh S., and Son H.I. Maintenance robot for 5-MW offshore wind turbines and its control. *IEEE/ASME Trans. on Mechatronics*, 21(5), October 2016.
- [legnani2010] Legnani G. and others . The point of isotropy and other properties of serial and parallel manipulators. *Mechanism and Machine Theory*, 45(10):11407–1423, October 2010.
- [legnani2012] Legnani G. and others . A new isotropic and decoupled 6-dof parallel manipulators. *Mechanism and Machine Theory*, 58:64–81, December 2012.
- [legnani2014] Legnani G. and M. Tiboni. Optimal design and application of a low-cost wire-sensor system for the kinematic calibration of industrial manipulators. *Mechanism and Machine Theory*, 73:25–48, March 2014.
- [leguay96] Leguay-Durand S. and Reboulet C. New design of a redundant spherical manipulator. In *6th ISRAM*, pages 365–370, Montpellier, May, 28-30, 1996.
- [leguay97] Leguay-Durand S. and Reboulet C. Optimal design of a redundant spherical parallel manipulator. *Robotica*, 15(4):399–405, July - August , 1997.
- [leguay98-phd] Leguay S. *Conception et optimisation de mécanismes parallèles à mobilités restreintes*. Ph.D. Thesis, ENSAE, Toulouse, June, 23, 1998. **Keywords:** design,optimal design,mechanical architecture,3 dof robot,wrist,mobility.
- [lei-y2022] Lei Y., Suhahara Y., and Takeda Y. Design and inverse kinematics of a novel tendon-driven continuum manipulator capable of twisting motion. In *ARK*, Bilbao, June, 26-30, 2022.
- [lei2013] Lei M.C. and Oetomo D. Modelling of cable wrapping phenomenon towards improved cable-driven mechanisms. In *IEEE/ASME Int. Conf. on Advanced Intelligent Mechatronics*, Wollogong, July, 9-12, 2012.

- [lei2020] Lei M.C. Dynamics of cable driven parallel manipulator allowing cable wrapping over rigid link. In *IEEE/ASME Int. Conf. on Advanced Intelligent Mechatronics*, Boston (virtual), July, 6-9, 2020.
- [lemay2004] Lemay J. and Notash L. Configuration engine for architecture planning of modular parallel robot. *Mechanism and Machine Theory*, 39(1):101–117, January 2004.
- [lenarcic2000] Lenarčič J., Stanišić M.M., and Parenti-Castelli V. A 4-dof parallel mechanism simulating the movement of the human sternum-clavicle-scapula complex. In *ARK*, pages 325–332, Piran, June, 25-29, 2000.
- [lenarcic2000-1] Lenarčič J., Stanišić M.M., and Parenti-Castelli V. Kinematic design of a humanoid robotic shoulder complex. In *IEEE Int. Conf. on Robotics and Automation*, pages 4123–4128, San Francisco, April, 24-28, 2000.
- [lenarcic2002] Lenarčič J., Stanišić M.M., and Schearer E. Humanoid humeral pointing kinematics. In *ARK*, pages 79–88, Caldes de Malavalla, June 29- July 2, 2002.
- [lenarcic2003] Lenarčič J. and Stanišić M.M. A humanoid shoulder complex and the humeral pointing kinematics. *IEEE Trans. on Robotics and Automation*, 19(3):499–506, June 2003.
- [lenders2011] Lenders C., Gauthier M., and Lambert P. Parallel microrobot actuated by capillary effects. In *IEEE Int. Conf. on Robotics and Automation*, pages 470–475, Shanghai, May, 9-13, 2011.
- [lenders2012] Lenders C. and others . Three-dof microrobot platform based on capillary actuation. *IEEE Trans. on Robotics*, 28(5):1153–1161, October 2012.
- [leonardis2017] Leonardis D. and others . A 3-RSR haptic wearable device for rendering fingertip contact forces. *IEEE Trans. on Haptics*, 10(3):305–316, 2017.
- [lerbet87] Lerbet J. *Mécanique des systèmes de solides rigides comportant des boucles fermées*. Ph.D. Thesis, Paris VI, Paris, June, 19, 1987. **Keywords:** mobility.
- [leroy2003] Leroy N. and others . Dynamic modeling of a parallel robot. Application to a surgical simulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 4330–4335, Taipei, September, 14-19, 2003.
- [lescagno2015] Lescano S., Rakotondrabe M., and Andreff N. Precision prediction using interval exponential mapping of a parallel kinematic smart; composite microstructure. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Hamburg, Germany, September 28- October 2, 2015.
- [lesellier2018] Lesellier M. and others . An active stabilizer for cable-driven parallel robot vibration damping. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Vilamoura, October, 7-12, 2012.
- [lessanibahri2017] Lessanibahri S. and others . Twist feasibility analysis of cable-driven parallel robots. In *3rd Int. Conf. on cable-driven parallel robots (CableCon)*, Québec, 2017.
- [lessanibahri2018] Lessanibahri S., Cardou P., and Caro S. Parasitic inclinations in cable-driven parallel robot using cable loops. In *28th CIRP Design Conf.*, Nantes, 2018.
- [lessanibahri2019] Lessanibahri S., Cardou P., and Caro S. A cable-driven parallel robot with an embedded tilt-roll wrist. In *ASME Design Engineering Technical Conference*, Anaheim, August, 18-21, 2019.
- [lessard2007] Lessard S. and others . Optimum static balancing of the parallel robot for medical 3D-ultrasound imaging. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [lessard2007-1] Lessard S., Bigras P., and Bonev I.A. A new medical parallel robot and its static balancing optimization. *ASME Journal of Medical Devices*, 1, December 2017.
- [levey2007] Le Vey G. Dynamics and control of actuated parallel structures as a constrained optimization problem through Gauss’s principle ‘ and Appell’s equations. In *IEEE Int. Conf. on Robotics and Automation*, pages 1480–1485, Roma, April, 10-14, 2007.
- [lewkowicz2019] Lewkowicz R. and Kowaleczko G. Kinematic issues of a spatial disorientation simulator. *Mechanism and Machine Theory*, 138, 2019.

- [li-b2011] Li B. and others . Conceptual design and analysis of the 2T1R mechanism for a cooking robot. *Robotics and Autonomous Systems*, 59(1):74–83, January 2011.
- [li-b2013] Li B., Zhang Q., and Huang Z. Position singularity analysis of a spherical class of the Stewart parallel mechanism with two dissimilar semi-symmetrical hexagons. *Robotica*, 31(1):123–136, January 2013.
- [li-b2015] Li B. and others . Design and analysis of parallel robots for a flexible fixturing system with performance atlases. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Hamburg, Germany, September 28–October 2, 2015.
- [li-b2016] Li B., Li Y., and Zhao X. Kinematics analysis of a novel over-constrained three degree-of-freedom spatial parallel manipulator. *Mechanism and Machine Theory*, 104:222–233, 2016.
- [li-c-2013] Li C. and others . Cartesian stiffness evaluation of a novel 2 dof parallel wrist under redundant and antagonistic actuation. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 959–964, Tokyo, November, 3-7, 2013.
- [li-c-2019] Li C. and others . A robotic system with multichannel flexible parallel manipulators for single port access surgery. *IEEE Trans. on Industrial Informatics*, 15(3):1678–1687, 2019.
- [li-chun94] Li-Chun T., Jun Kuo W., and Jun Kuo M. Dynamic load-carrying capacity and inverse dynamics of multiple cooperating robotic manipulators. *IEEE Trans. on Robotics and Automation*, 10(1):71–74, February 1994.
- [li-h-2006] Li H. and others . Analytic form of the six-dimensional singularity locus of the general Gough-Stewart platform. *ASME J. of Mechanical Design*, 128(1):279–287, January 2006.
- [li-h-2006-1] Li H., Gosselin C.M., and Richard M.J. Determination of maximal singularity-free zones in the workspace of planar three-degree-of-freedom parallel mechanisms. *Mechanism and Machine Theory*, 41(10):1157–1167, October 2006.
- [li-h-2006-2] Li H., Gosselin C.M., Richard M.J., and Mayer St-Onge B. Analytic form of the six-dimensional singularity locus of the general Gough-Stewart platform. *ASME J. of Mechanical Design*, 128(1):279–287, 2006.
- [li-h-2015] Li H. and others . Design and control of 3-dof spherical parallel mechanism robot eyes inspired by the binocular vestibule-ocular reflex. *J. of Intelligent and Robotic Systems*, 78(3-4):425–441, June 2015.
- [li-h-2015-1] Li H. and Hao G. A constraint and position identification (CPI) approach for the synthesis of decoupled spatial translational compliant parallel manipulator. *Mechanism and Machine Theory*, 90:59–83, 2015.
- [li-h-2016] Li H. and Pan Z. The five-hundred-meter aperture spherical radio telescope project. *AGU Radio Science*, pages 1060–1064, 2016.
- [li-h-2017] Li H. and others . Preliminary running and performance test of the huge cable robot of FAST telescope. In *3rd Int. Conf. on cable-driven parallel robots (CableCon)*, Québec, 2017.
- [li-h2011] Li H., Zhang Y., and Dai J.S. Design optimization of parallel manipulators with required pose resolution. In *IEEE Int. Conf. on Robotics and Automation*, Shanghai, May, 9-13, 2011.
- [li-h2012] Li H. and others . Optimal force distribution based on a slack rope model in the incompletely constrained cable-driven parallel mechanism of FAST telescope. In *1st Int. Conf. on cable-driven parallel robots (CableCon)*, Stuttgart, September, 3-4, 2012.
- [li-h2014] Li H. On the static stiffness of incompletely restrained cable-driven robot. In *2nd Int. Conf. on cable-driven parallel robots (CableCon)*, pages 17–28, Duisburg, August, 24-27, 2014.
- [li-j-2001] Li J. and others . Inverse kinematics and dynamics of the 3-RRS parallel platform. In *IEEE Int. Conf. on Robotics and Automation*, pages 2506–2511, Seoul, May, 23-25, 2001.
- [li-j-2018] Li J. and others . Position solution and kinematic interference analysis of a novel parallel hip-assistive mechanism. *Mechanism and Machine Theory*, 120:265–287, 2018.
- [li-j-2020] Li J. and others . Velocity and force transfer performance analysis of a parallel hip assistive mechanism. *Robotica*, 38:747–759, 2020.

- [li-j-2020-1] Li J. and others . Dimensional synthesis of a 5-dof hybrid robot. *Mechanism and Machine Theory*, 150, 2020.
- [li-j-2022] Li J. and others . Conceptual design and error analysis of a cable-driven parallel robot. *Robotica*, 40(7):2152–2167, July 2022.
- [li-l2020] Li L. and others . Type synthesis of a class of novel 3-dof single-loop parallel leg mechanisms for walking robots. *Mechanism and Machine Theory*, 145, 2020.
- [li-l2020-1] Li L., Fang Y., and Wang L. Design of a family of multi-dof drive systems for fewer limb parallel mechanisms. *Mechanism and Machine Theory*, 148, 2020.
- [li-l2021] Li L. and others . Type synthesis of single-loop 3T1R-parallel mechanisms with a multi-dof drive system. *Mechanism and Machine Theory*, 163, 2021.
- [li-m-2006] Li M. and others . Forward position analysis of the 3-dof module of the TriVariant: a 5-dof reconfigurable hybrid robot. *ASME J. of Mechanical Design*, 128(1):319–322, January 2006.
- [li-p2018] Li P. and others . Relative posture-based kinematic calibration of a 6-RSS parallel robot by optical coordinate measurement machine. *International Journal of Advanced Robotic Systems*, 2018.
- [li-q-2003] Li Q. and Huang Z. Type synthesis of 4-dof parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 755–760, Taipei, September, 14-19, 2003.
- [li-q-2003-1] Li Q. and Huang Z. Mobility analysis of a 3-5R parallel mechanism family. In *IEEE Int. Conf. on Robotics and Automation*, pages 1887–1892, Taipei, September, 14-19, 2003.
- [li-q-2003-2] Li Q. and Huang Z. Mobility analysis of lower-mobility parallel manipulators based on screw theory. In *IEEE Int. Conf. on Robotics and Automation*, pages 1179–1184, Taipei, September, 14-19, 2003.
- [li-q-2003-3] Li Q. and Huang Z. Type synthesis of 5-dof parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 1203–1208, Taipei, September, 14-19, 2003.
- [li-q-2004] Li Q. and Wu F.X. Control performance improvement of a parallel robot via the design for control approach. *Mechatronics*, 14(8):947–964, October 2004.
- [li-q-2006] Li Q. Experimental validation on the integrated design and control of a parallel robot. *Robotica*, 24(2):173–181, March 2006.
- [li-q-2009] Li Q. and Hervé J.M. Parallel mechanisms with bifurcation of Schoenflies motion. *IEEE Trans. on Robotics*, 25(1):158–164, February 2009.
- [li-q-2009-1] Li Q. and Hervé J.M. Structural shakiness of non overconstrained translational parallel mechanisms with identical limbs. *IEEE Trans. on Robotics*, 25(1):25–36, February 2009.
- [li-q-2010] Li Q. and Hervé J.M. 1T2R parallel mechanisms without parasitic motion. *IEEE Trans. on Robotics*, 26(3):401–410, June 2010.
- [li-q-2011] Li Q. and others . Parasitic motion of 3-PRS parallel mechanism with different limb arrangements. *Robotics and Computer-Integrated Manufacturing*, 27(2):389–396, April 2011.
- [li-q-2014] Li Q. and Hervé J.M. Type synthesis of 3-dof RPR-equivalent parallel mechanisms. *IEEE Trans. on Robotics*, 30(6):1333–1343, December 2014.
- [li-qc-2003] Li Q-C. and Huang Z. A family of symmetrical lower mobility parallel mechanisms with spherical and parallel subchains. *J. of Robotic Systems*, 20(6):297–305, 2003.
- [li-qc-2004] Li Q-C., Huang Z., and Hervé J-M. Type synthesis of 3R2T 5-dof parallel mechanisms using Lie group of displacements. *IEEE Trans. on Robotics and Automation*, 20(2):173–180, April 2004.
- [li-qc-2004-1] Li Q-C. and Huang Z. Mobility analysis of a novel 3-5R parallel mechanism family. *ASME J. of Mechanical Design*, 126(1):79–82, January 2004.
- [li-s-2002] Li S., Huang Z., and Zuo Q. Kinematics of a special 3-dof 3-UPU parallel manipulator. In *ASME Design Engineering Technical Conference*, Montréal, September 29- October 2, 2002.

- [li-s2007] Li S. and Gosselin C. Stiffness analysis of 3-RRR planar parallel mechanisms based on CCT. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [li-s2009] Li S. and others . Design of a new fMRI compatible haptic interface. In *Third Joint Eurohaptics Conference and Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*, Slat Lake City, March, 18-20, 2009.
- [li-s2019] Li S. and Zanotto D. Tracking control of fully-constrained cable-driven parallel robots using adaptive dynamic programming. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Macau, 2019.
- [li-t-2002] Li T. and Payandeh S. Design of spherical parallel mechanisms for application to laparoscopic surgery. *Robotica*, 20(2):133–138, March 2002.
- [li-t-2012] Li T. and Ceccarelli M. A characterization of human locomotion by CATRASYS (cassino tracking system). In *4th European Conf. on Mechanism Science (Eucomes)*, pages 469–485, Santander, September, 19-21, 2012.
- [li-t2005] Li T., Li Q., and Payandeh S. Nn-based solution of forward kinematics of 3dof parallel spherical manipulator. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Edmonton, August, 2-6, 2005.
- [li-w-2005] Li W., Gao F., and Zhang J. R-cube, a decoupled parallel manipulator only with revolute joints. *Mechanism and Machine Theory*, 40(4):467–473, April 2005.
- [li-w-2005-1] Li W., Gao F., and Zhang J. A three-dof translational manipulator with decoupled geometry. *Robotica*, 23(6):805–808, November 2005.
- [li-w-2007] Li W., Liu X., and Liu K. Tracking control of a planar parallel robot via adaptive backstepping. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [li-w-2008] Li W. *Parallel manipulators, New Developments*, chapter Type design of decoupled manipulators with low mobility, pages 483–498. ITECH, April 2008. **Keywords:** 3 dof robot, structural synthesis, decoupled robot.
- [li-w-2018] Li W. and Angeles J. A novel three-loop parallel robot with full mobility: Kinematics, singularity, workspace, and dexterity analysis. *J. of Mechanisms and Robotics*, 9(5), 2018.
- [li-w2018-1] Li W. and Angeles J. The design for isotropy of a class of six-dof parallel-kinematics machines. *Mechanism and Machine Theory*, 126, 2018.
- [li-w2018-2] Li W. and others . Design of 6-dof parallel ankle rehabilitation robot. In *Int. Conf. on Cyborg and Bionic Systems*, Shenzhen, October, 25-27, 2018.
- [li-w2018-3] Li W. and Angeles J. Full-mobility 3-CCC parallel-kinematics machines: forward kinematics, singularity, workspace and dexterity analyses. *Mechanism and Machine Theory*, 126:312–328, August 2018.
- [li-y-2003] Li Y., Huang Z., and Chen L. Singular loci analysis of 3/6-Stewart manipulator by singularity-equivalent mechanism. In *IEEE Int. Conf. on Robotics and Automation*, pages 1881–1886, Taipei, September, 14-19, 2003.
- [li-y-2004] Li Y. and Xu Q. Optimal kinematic design for a general 3-PRS spatial parallel manipulator based on dexterity and workspace. In *11th International Conference on Machine Design and Production*, Antalya, October, 13-15, 2004.
- [li-y-2005] Li Y. and Xu Q. Kinematics and inverse dynamics for a general 3-PRS spatial parallel mechanism. *Robotica*, 23(2):219–229, March 2005.
- [li-y-2005-1] Li Y. and Xu Q. Kinematics and dexterity analysis for a novel 3-dof translational parallel manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 2955–2960, Barcelona, April, 19-22, 2005.
- [li-y-2005-2] Li Y. and Xu Q. Dynamic analysis of a modified DELTA parallel robot for cardiopulmonary resuscitation. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Edmonton, August, 2-6, 2005.
- [li-y-2006] Li Y. and others . Novel design and modeling of a mobile parallel manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 1135–1140, Orlando, May, 16-18, 2006.



- [li-y-2006-1] Li Y. and Xu Q. Kinematic analysis and design of a new 3-dof translational parallel manipulator. *ASME J. of Mechanical Design*, 128(4):729–737, July 2006.
- [li-y-2006-2] Li Y. and Xu Q. GA-based multi-objective optimal design of a planar 3-dof cable-driven parallel manipulator. In *IEEE Int. Conf. on Robotics and Biomimetics*, pages 1360–1365, Kunming, December, 17-20, 2006.
- [li-y-2006-3] Li Y. and Xu Q. A new approach to the architecture optimization of a general 3-PUU translational parallel manipulator. *J. of Intelligent and Robotic Systems*, 46:59–72, 2006.
- [li-y-2007] Li Y. and Xu Q. Kinematic analysis of a 3-PRS parallel manipulator. *Robotics and Computer-Integrated Manufacturing*, 23(4):395–408, August 2007.
- [li-y-2007-1] Li Y. and Xu Q. Design and development of a medical parallel robot for cardiopulmonary resuscitation. *IEEE/ASME Trans. on Mechatronics*, 12(3):265–273, June 2007.
- [li-y-2008] Li Y. and Xu Q. Optimum design and development of an XY flexure micromanipulator for micro scale positioning. In *IEEE Int. Conf. on Robotics and Automation*, pages 3112–3117, Pasadena, May, 19-23, 2008.
- [li-y-2008-1] Li Y. and Xu Q. Design of a new decoupled XY flexure parallel kinematic manipulator with actuator isolation. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 470–475, Nice, France, September, 22-26, 2008.
- [li-y-2008-2] Li Y. and Xu Q. Stiffness analysis for a 3-PUU parallel kinematic machine. *Mechanism and Machine Theory*, 43(2):186–200, February 2008.
- [li-y-2008-3] Li Y. and Xu Q. *Parallel manipulators, New Developments*, chapter Design, analysis and applications of a class of new 3-dof translational parallel manipulator, pages 457–482. ITECH, April 2008. **Keywords:** 3 dof robot.
- [li-y-2009] Li Y. and Xu Q. Dynamic modeling and robust control of a 3-PRC translational parallel kinematic machine. *Robotics and Computer-Integrated Manufacturing*, 25(3):630–640, June 2009.
- [li-y-2010] Li Y. and others . Dynamique performance comparison and counterweight optimization of two 3-dof parallel manipulators for a new hybrid machine-tool. *Mechanism and Machine Theory*, 45(11):1668–1680, November 2010.
- [li-y-2016] Li Y. and others . Design, analysis and simulation of a novel 3-dof translational micromanipulator based on the PRB model. *Mechanism and Machine Theory*, pages 235–258, 2016.
- [li-y-b-2001] Li Y. and Bone G.M. Are parallel manipulators more energy efficient ? In *IEEE Int. Symp. on Computational Intelligence in Robotics and Automation*, Banff, August 29- September 1, 2001.
- [li-y2018] Li Y., Huang T., and Chetwynd D.K. An approach for smooth trajectory planning of high-speed pick-and-place parallel robots using quintic B-splines. *Mechanism and Machine Theory*, 126:479–490, 2018.
- [li-y2019] Li Y., Yao Y-A., and He Y. Design and analysis of a multi-mode mobile robot based on a parallel mechanism with branch variation. *Mechanism and Machine Theory*, 130:276–300, 2019.
- [li-y2020] Li Y. and others . Optimization of dynamic load distribution of a serial-parallel hybrid humanoid arm. *Mechanism and Machine Theory*, 149, 2020.
- [li-yg-2010] Li Y.G. and others . Design of a 3-dof PKM module for large structural component machining. *Mechanism and Machine Theory*, 45(6):941–954, June 2010.
- [li-yh2014] Li Y.H. and others . Integrated design of a 4-DOF high-speed pick-and-place parallel robot. *Annals of the CIRP*, 63(1):185–188, 2014.
- [li-yw-2002] Li Y-W., Wang J-S., and Wang L-P. Stiffness analysis of a Stewart platform-based parallel kinematic machine. In *IEEE Int. Conf. on Robotics and Automation*, pages 3672–3677, Washington, May, 11-15, 2002.
- [li-yw-2003] Li Y-W. and others . Inverse dynamics and simulation of a 3-dof spatial parallel manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 4092–4097, Taipei, September, 14-19, 2003.

- [li97] Li D. and Salcudean T. Modeling, simulation and control of hydraulic Stewart platform. In *IEEE Int. Conf. on Robotics and Automation*, pages 3360–3366, Albuquerque, April, 21-28, 1997.
- [lian-b-2016] Lian B. and others . Passive and active gravity compensation of horizontally- mounted 3-RPS parallel kinematic machine. *Mechanism and Machine Theory*, 104:190–201, 2016.
- [lian-b-2017] Lian B., Sun T., and Song Y. Parameter sensitivity analysis of a 5-dof parallel manipulator. *Robotics and Computer-Integrated Manufacturing*, 46:1–14, 2017.
- [lian-b-2019] Lian B., Wang L., and Wang X.V. Elastodynamic modeling and parameter sensitivity analysis of a parallel manipulator with articulated traveling plate. *The International Journal of Advanced Manufacturing Technology*, 102:1583–1599, 2016.
- [lian-d2017] Lian D. and others . Rigid-flexible coupling dynamic modeling and investigation of a redundantly actuated parallel manipulator with multiple actuation modes. *Journal of Sound and Vibration*, 403:129–151, 2017.
- [liang-x2018] Liang X. and Takeda Y. Iterative method for the inverse kinematics of a 2-limb parallel mechanism with 3-dof using a 6-limb mechanism with 6-dof. In *ARK*, pages 108–115, Bologna, July, 1-5, 2018.
- [liang-x2019] Liang X. and Takeda Y. Transmission index of a class of parallel manipulators with 3-RS(SR) primary structures based on pressure angle and equivalent mechanism with 2-SS chains replacing RS chain. *Mechanism and Machine Theory*, 139:359–378, 2019.
- [liang2011] Liang Q. and others . Six dof micro manipulator based on compliant parallel mechanism with integrated force sensor. *Robotics and Computer-Integrated Manufacturing*, 27(1):124–134, February 2011.
- [liao-h-2007] Liao H. and others . Surgical manipulator with linkage mechanism for anterior cruciate ligament reconstruction. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 1266–1271, San Diego, September, 22-26, 2007.
- [liao-s2020] Liao S. and others . Parameter identification and nonparametric calibration of the Tri-Pyramid robot. *IEEE/ASME Trans. on Mechatronics*, 25(5), October 2020.
- [liao-z2018] Liao Z. and others . Screw theory based mathematical modeling and kinematic analysis of a novel ankle rehabilitation robot with a constrained 3-PSP mechanism topology. *The International Journal of Advanced Manufacturing Technology*, pages 351–360, 2018.
- [liao2001] Liao Q. and McCarthy J. M. On the seven position synthesis of a 5-SS platform linkage. *ASME J. of Mechanical Design*, 123(1):74–79, March 2001.
- [liao93] Liao Q., SAeneviratne L.D., and Earles S.W.E. Forward kinematic analysis for the general 4-6 Stewart platform. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Yokohoma, July, 26-30, 1993.
- [liem2007] Liem K., Kecskeméthy A., and Merlet J-P. Hexaspine: A parallel platform for physical cervical spine simulation - design and interval-based verification. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [lim2009] Lim W.B. and others . A generic tension-closure analysis method for fully-constrained cable-driven parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 2187–2192, Kobe, May, 14-16, 2009.
- [lim2011] Lim W.B. and others . A generic force closure algorithm for cable-driven parallel manipulators. *Mechanism and Machine Theory*, 46(9):1265–1275, September 2011.
- [lin-cl2008] Lin C-L. and others . Singularity characterization and path planning of a new 3 links 6-dofs parallel manipulator. *European Journal of Control*, 3:201–212, 2008.
- [lin-h2003] Lin H. and McInroy J.E. Adaptive sinusoidal disturbance cancellation for precise pointing of Stewart platforms. *IEEE Trans. on Control Systems Technology*, 11(2):267–272, March 2003.
- [lin-j2009] Lin J. and Chen C-W. Computer-aided-symbolic dynamic modeling for Stewart-platform manipulator. *Robotica*, 27(3):331–341, May 2009.
- [lin-j2018] Lin J., Wu C.Y., and Chang J. Design and implementation of a multi-degrees-of-freedom cable-driven parallel robot with gripper. *International Journal of Advanced Robotic Systems*, 2020.

- [lin-lc-2000] Lin L-C. and Tsay M-U. Modeling and control of micropositioning systems using Stewart platforms. *J. of Robotic Systems*, 17(1):17–52, 2000.
- [lin90] Lin W., Duffy J., and Griffis M. Forward displacement analysis of the 4-4 Stewart platform. In *ASME Proc. of the the 21th Biennial Mechanisms Conf.*, pages 263–269, Chicago, September, 16-19, 1990.
- [lin92] Lin W., Crane III C.D., and Duffy J. Closed-form forward displacement analysis of the 4-5 in-parallel platforms. In *22nd Biennial Mechanisms Conf.*, volume DE-45, pages 521–527, Scottsdale, September, 13-16, 1992.
- [lin92-1] Lin W., Duffy J., and Griffis M. Forward displacement analysis of the 4-4 Stewart platform. *ASME J. of Mechanical Design*, 114(3):444–450, September 1992.
- [lin94] Lin W., Crane III C.D., and Duffy J. Closed-form forward displacement analysis of the 4-5 in-parallel platforms. *ASME J. of Mechanical Design*, 116(1):47–53, March 1994.
- [linda2011] Linda O. and Manic M. Uncertainty-robust design of interval type-2 fuzzy logic controller for Delta parallel robot. *IEEE Trans. on Industrial Informatics*, 7(4), November 2011.
- [lindem95] Lindem T.J. and Charles P.A.S. Octahedral machine with a hexapodal triangular servostrut section, March, 28, 1995. United States Patent n° 5,401,128, Ingersoll Milling Machine Company. **Keywords:** applications,machine-tool,patent.
- [ling-m2018] Ling M. and others . Kinetostatic modeling of complex compliant mechanisms with serial-parallel sub-structures: A semi-analytical matrix displacement method. *Mechanism and Machine Theory*, 126:169–184, 2018.
- [ling94] Ling S-H. and Huang M.Z. Kinestatic analysis of general parallel manipulators. In *ASME Mechanisms Design Conf.*, Minneapolis, September, 14-16, 1994.
- [ling98] Ling S.H. Motion/force simulator with six or three degrees of freedom, May, 19, 1998. United States Patent n° 5,752,834. **Keywords:** mechanical architecture,6 dof robot,3 dof robot,patent.
- [lins-vieira2018] Lins Vieira H. and da Silva M.M. Estimating the probability of failure of a 3RRR manipulator using a metamodel. In *7tht European Conf. on Mechanism Science (Eucomes)*, Aachen, September, 4-6, 2018.
- [lins-vieira2019] Lins Vieira H. and others . Reliable motion planning for parallel manipulators. *Mechanism and Machine Theory*, 140, 2019.
- [lintott96] Lintott A.B. and Dunlop G.R. Calibration of a parallel topology robot. In *6th ISRAM*, pages 429–434, Montpellier, May, 28-30, 1996.
- [lintott97] Lintott A.B. and Dunlop G.R. Parallel topology robot calibration. *Robotica*, 15(4):395–398, July - August , 1997.
- [lintott98] Lintott A.B. and Dunlop G.R. Geometric modelling of general parallel mechanisms for calibration purposes. In *ARK*, pages 175–184, Strobl, June 29- July 4, 1998.
- [liping2016] Liping W. and others . A novel 3-PUU parallel mechanism and its kinematic issues. *Robotics and Computer-Integrated Manufacturing*, 42:86–102, 2016.
- [liping2016-1] Liping W., Huayang X., and Liwen G. Kinematics and inverse dynamics analysis for a novel 3-PUU parallel mechanism. *Robotica*, 35:2018–2035, 2016.
- [liping2017] Liping W., Huayang X., and Liwen G. Kinematic and inverse dynamic analysis for a novel 3-PUU parallel manipulator. *Robotica*, 35(10):2018–2035, October 2017.
- [lippi2018] Lippi M. and Marino A. Cooperative object transportation by multiple ground and aerial vehicles: modeling and planning. In *IEEE Int. Conf. on Robotics and Automation*, Brisbane, May, 21-25, 2018.
- [liu-ax-95] Liu A-X. and Yang T-L. Configuration analysis of a class of parallel structures using improved continuation. In *9th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 155–158, Milan, August 30- September 2, 1995.

- [liu-ch-2004] Liu C-H. and Cheng S. Direct singular position of 3RPS parallel manipulator. *ASME J. of Mechanical Design*, 126(6):1006–1016, November 2004.
- [liu-f2020] Liu F. and others . Design and analysis of a cable-driven rigid–flexible coupling parallel mechanism with variable stiffness. *Mechanism and Machine Theory*, 153, 2020.
- [liu-g-2003] Liu G., Lou Y., and Li Z. Singularities of parallel manipulators: a geometric treatment. *IEEE Trans. on Robotics and Automation*, 19(4):579–594, August 2003.
- [liu-g2006] Liu G., Trinkle J.C., and Shvalb N. Motion planning for a class of planar closed-chain manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 133–138, Orlando, May, 16-18, 2006.
- [liu-g2014] Liu G. and others . Singularity analysis and detection of 6-UCU parallel manipulator. *Robotics and Computer-Integrated Manufacturing*, 30, 2014.
- [liu-g2018] Liu G. and others . GA SQP optimization for the dimensional synthesis of a delta mechanism based haptic device design. *Robotics and Computer-Integrated Manufacturing*, 51:72–84, 2018.
- [liu-gf-2001] Liu G.F. and others . Analysis and control of redundant parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 3748–3754, Seoul, May, 23-25, 2001.
- [liu-gf-2002] Liu G.F., Wu X.Z., and Li Z.X. Inertial equivalence principle and adaptive control of redundant parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 835–840, Washington, May, 11-15, 2002.
- [liu-gf-2003] Liu G.F. and others . Kinematic synthesis of parallel manipulators; a Lie theoretic approach. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 2096–2100, Las Vegas, October 2003.
- [liu-h-2007] Liu H. and others . Kinematic design of a 5-dof hybrid robot with large workspace/limb-stroke ratio. *ASME J. of Mechanical Design*, 129(5):530–537, May 2007.
- [liu-h-2011] Liu H., Huang T., and Chetwynd D.G. A method to formulate a dimensionnally homogeneous jacobian of parallel robots. *IEEE Trans. on Robotics*, 27(1):150–156, February 2011.
- [liu-h-2014] Liu H. and others . A generalized approach for computing the transmission index of parallel mechanisms. *Mechanism and Machine Theory*, 74:245–256, April 2014.
- [liu-h-2017] Liu H. and others . Force/motion transmissibility analyses of redundantly actuated and overconstrained parallel manipulators. *Mechanism and Machine Theory*, 109:126–138, 2017.
- [liu-h-2017-1] Liu H. and others . Stiffness modeling of parallel mechanisms at limb and joint/link levels. *IEEE Trans. on Robotics*, 33(3):734–741, 2017.
- [liu-ht-2007] Liu H.T. and others . Optimal design of the TriVariant robot to achieve a nearly axial symmetry of kinematic performance. *Mechanism and Machine Theory*, 42(12):1643–1652, December 2007.
- [liu-j2021] Liu J. and others . Investigation of a novel 2R1T parallel mechanism and construction of its variants. *Robotica*, 39:1834–1848, 2021.
- [liu-j2024] Liu J. and others . Design and kinematical performance analysis of a novel reconfigurable parallel mechanism with three remote center-of-motion modes. *Mechanism and Machine Theory*, 191, 2024.
- [liu-k-2017] Liu K. and others . Robust control of 3-DOF parallel robot driven by PMAs based on nominal stiffness model. *Advanced Robotics*, 31(10):531–543, 2017.
- [liu-k-2019] Liu K., Kong X., and Yu J. Operation mode analysis of lower-mobility parallel mechanisms based on dual quaternions. *Mechanism and Machine Theory*, 142, 2019.
- [liu-mj-2000] Liu M-J., Li C-X., and C-N. Li. Dynamics analysis of the Gough-Stewart platform manipulator. *IEEE Trans. on Robotics and Automation*, 16(1):94–98, February 2000.
- [liu-p-2016] Liu P. and Ma H. On the stability for a cable driven parallel robot while considering the cable sag effect. In *13th Int. Conf. on Ubiquitous robotics and ambient intelligence (URAI)*, August, 19-22, 2016.

- [liu-q2014] Liu Q. and others . Fuzzy sliding mode control of a multi-dof parallel robot in rehabilitation environment. *International Journal of Humanoid Robotics*, 11(1), 2014.
- [liu-q2019] Liu Q. and others . An iterative tuning approach for feedforward control of parallel manipulators by considering joint couplings. *Mechanism and Machine Theory*, 140:159–169, 2019.
- [liu-q2019-1] Liu Q. and Huang T. Inverse kinematics of a 5-axis hybrid robot with non-singular tool path generation. *Robotics and Computer-Integrated Manufacturing*, 56:140–148, 2019.
- [liu-s-2017] Liu S., Qiu Z-C., and Zhang X-M. Singularity and path-planning with the working mode conversion of a 3-DOF 3-RRR planar parallel manipulator. *Mechanism and Machine Theory*, 107:166–182, 2017.
- [liu-sa-2002] Liu S.A. and Tzo H.L. A novel six components force sensor with good measurement isotropy and sensitivities. *Sensors and Actuators A*, 100:223–230, 2002.
- [liu-t2007] Liu T., Inoue Y., and Shibata K. Wearable force sensor with parallel structure for measurement of ground reaction force. *Measurement*, 40:644–653, 2007.
- [liu-t2017] Liu T. and others . Design of a thrust-vectoring tailcone based on 3-RRRR parallel manipulator for small-size autonomous underwater vehicles. In *OCEANS 2017*, Anchorage, 2017.
- [liu-x2021] Liu X. and others . Coordination dynamics and model-based neural network synchronous controls for redundantly full-actuated parallel manipulator. *Mechanism and Machine Theory*, 160, 2021.
- [liu-x2022] Liu X. and others . Performance evaluation of a special 6-PUS type parallel manipulator. *Robotica*, 40:505–519, 2022.
- [liu-xj2006-1] Liu X-J., Wang J., and Pritschow G. On the optimal kinematic design of the PRRRP 2-dof parallel mechanism. *Mechanism and Machine Theory*, 41(9):1111–1130, September 2006.
- [liu-xj2006-2] Liu X-J. Optimal kinematic design of a three translational dofs parallel manipulator. *ASME J. of Mechanical Design*, 128(1):239–250, January 2006.
- [liu-xj2006-3] Liu X-J., Wang J., and Zheng H.J. Optimum design of the 5R symmetrical parallel manipulator with surrounded and good-condition workspace. *Robotics and Autonomous Systems*, 54(3):221–233, March 2006.
- [liu-xj2006-4] Liu X-J., Wang J., and Kim J. Determination of the link lengths for a spatial 3-dof parallel manipulator. *ASME J. of Mechanical Design*, 128(2):365–373, March 2006.
- [liu-xj2007] Liu X-J., Guan L., and Wang J. Kinematics and closed optimal design of a kind of PRRRP parallel manipulator. *ASME J. of Mechanical Design*, 129(5):558–563, May 2007.
- [liu-xj2009] Liu X-J. and others . A new family of spatial 3-dof parallel manipulators with two translational and one rotational dofs. *Robotica*, 27(2):241–247, March 2009.
- [liu-xj2015] Liu X-J., Li J., and Zhou Y. Kinematic optimal design of a 2-deegree-of-freedom 3-parallelogram planar parallel manipulator. *Mechanism and Machine Theory*, 91:168–196, 2015.
- [liu-xj2018] Liu X-J. and others . A novel acceleration capacity index based on motion/force transmissibility for high-speed parallel robots. *Mechanism and Machine Theory*, 126:156–170, 2018.
- [liu-xj2000] Liu X-J., Wang J-S., and Gao F. On the optimum design of planar 3-dof planar parallel manipulators with respect to the workspace. In *IEEE Int. Conf. on Robotics and Automation*, pages 4123–4128, San Francisco, April, 24-28, 2000.
- [liu-xj2000-1] Liu X-J., Wang J., and Gao F. Performance atlases of the workspace for planar 3-dof parallel manipulators. *Robotica*, 18(5):563–568, September 2000.
- [liu-xj2001] Liu X-J., Wang J., Gao F., and Wang L-P. On the analysis of a new spatial three-degree-of-freedom parallel manipulator. *IEEE Trans. on Robotics and Automation*, 17(6):959–968, December 2001.
- [liu-xj2001-1] Liu X-J., Wang J., Gao F., and Wang L-P. On the design of 6-dof parallel micro-motion manipulators. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Maui, Hawaii, October 29- November 3, 2001.

- [liu-xj2002] Liu X-J. and others . Mechanism design of a simplified 6-dof 6-RUS parallel manipulator. *Robotica*, 20(1):81–91, January 2002.
- [liu-xj2002-1] Liu X-J. and Kim J. A new three-degree-of-freedom parallel manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 1155–1160, Washington, May, 11-15, 2002.
- [liu-xj2003] Liu X-J., Jeong J.I., and Kim J. A three translational dofs parallel cube-manipulator. *Robotica*, 21(6):645–652, December 2003.
- [liu-xj2003-1] Liu X-J. and Wang J. Some new parallel mechanisms containing the planar four-bar parallelogram. *Int. J. of Robotics Research*, 22(9):717–732, September 2003.
- [liu-xj2003-2] Liu X-J., Wang J., and Zheng H. Workspace atlases for the computer aided design of the Delta robot. *Proc. Instn Mech Engrs, Part C: J. Mechanical Engineering Science*, 217(8):861–869, August 2003.
- [liu-xj2003-3] Liu X-J., Kim J., and Oh K-K. Singularity analysis of the HALF parallel manipulator with revolute actuators. In *IEEE Int. Conf. on Robotics and Automation*, pages 767–772, Taipei, September, 14-19, 2003.
- [liu-xj2004] Liu X-J. and others . A new approach to the design of a DELTA robot with a desired workspace. *J. of Intelligent and Robotic Systems*, 39(2):209–225, June 2004.
- [liu-xj2005] Liu X-J. and others . HANA: a novel spatial parallel manipulator with one rotational and two translational degree of freedom. *Robotica*, 23(2):257–270, March 2005.
- [liu-xj2005-1] Liu X-J., Wang J., and Pritschow G. A new family of spatial 3-dof fully parallel manipulators with high rotational capability. *Mechanism and Machine Theory*, 40(4):475–494, April 2005.
- [liu-xj2006] Liu X-J., Wang J., and Wang L-P. Optimal kinematic design of the 2-dof translational parallel mechanism in a 5-axis gantry machine-tool. In *5th Chemnitzer Parallelkinematik Seminar*, pages 267–288, Chemnitz, April, 25-26, 2006.
- [liu-y-2006] Liu Y. and others . Time-optimal trajectory generation of a fast-motion planar parallel manipulator. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Beijing, October, 9-15, 2006.
- [liu-y-2012] Liu Y. and Staicu S. Inverse dynamics of a 3-PRC parallel kinematic machine. *Nonlinear Dynamics*, 67:1031–1041, 2012.
- [liu-y2016] Liu Y. and others . Determination of the maximal singularity-free zone of 4-RRR redundant parallel manipulator and its application on investigating length ratio of links. *Robotica*, 34(9):2039–2055, September 2016.
- [liu-y2020] Liu Y., Dai Z., and Lu Y. Precise stiffness and elastic deformations of serial-parallel manipulators by considering inertial wrench of moving links. *Robotica*, 38:2204–2220, 2020.
- [liu-y2020-1] Liu Y. and others . Type synthesis of multi-mode mobile parallel mechanisms based on refined virtual chain approach. *Mechanism and Machine Theory*, 152, 2020.
- [liu-z-2016] Liu Z. and others . Dimensional optimization of the Stewart platform based on inertial decoupling characteristics. *Robotica*, 34(5):1151–1167, May 2016.
- [liu91] Liu K., Fitzgerald M.K., and Lewis F. Some issues about modeling of the Stewart platform. In *2nd Int. Symp. on Implicit and Robust systems*, Warsaw, 1991.
- [liu91-1] Liu K. and al . Modeling and control of a Stewart platform manipulator. In *ASME Symp. on Control of Systems with inexact dynamic models*, pages 83–89, Atlanta, 1991.
- [liu92] Liu K., Lebrete G., Lowe J.A., and Lewis F.L. Control of a Stewart platform based robotic milling cell. In *ASME Winter Annual Meeting, Symp. on Manufacturing and Control issues in a robotics assembly Workcell*, Anaheim, February, 8-13, 1992.
- [liu93] Liu K., Fitzgerald M.K., and Lewis F. Kinematic analysis of a Stewart platform manipulator. *IEEE Trans. on Industrial Electronics*, 40(2):282–293, April 1993.

- [liu93-1] Liu K. and others . Stewart-Platform-based inlet duct painting system. In *IEEE Int. Conf. on Robotics and Automation*, pages 106–113, Atlanta, May, 2-6, 1993.
- [liu93-2] Liu K., Lewis F., Lebrete G., and Taylor D. The singularities and dynamics of a Stewart platform manipulator. *J. of Intelligent and Robotic Systems*, 8(3):287–308, 1993.
- [liu94] Liu K., Fitzgerald M.K., and Lewis F. Solution of nonlinear kinematics of a parallel-link constrained Stewart platform manipulator. *Circuits, Systems, and Signal Processing*, 13(2-3):167–183, 1994.
- [loloei2009] Loloei A.Z., Aref M.M., and Taghirad H.D. Wrench feasible workspace analysis of cable-driven parallel manipulators using LMI approach. In *IEEE/ASME Int. Conf. on Advanced Intelligent Mechatronics*, Singapore, June, 4-17, 2009.
- [loloei2011] Loloei A.Z. and Taghirad H.D. Controlable workspace of general cable-driven redundant parallel manipulator based on fundamental wrench. In *CCToMM Symposium on Mechanisms, Machine and Mechatronics*, Montréal, June, 2-3, 2011.
- [loncaric91] Loncaric J. and De Comarmond F. Modular dextrous hand, October, 1, 1991. United States Patent n° 5,052,736 Univ. of Maryland. **Keywords:** applications, patent.
- [long2014] Long P., Khalil W., and Martinet P. Dynamic modeling of parallel robots with flexible platforms. *Mechanism and Machine Theory*, 81:21–35, 2014.
- [lopes2007] Lopes A.M. and Almeida F.G. Acceleration-based force-impedance control of a six-dof parallel manipulator. *Industrial Robot*, 35(4):386–393, 2007.
- [lopes2008] Lopes A.M. and Almeida F. *Parallel manipulators, Towards new applications*, chapter Dynamic model of a 6-dof parallel manipulator using the generalized momentum, pages 69–86. ITECH, April 2008. **Keywords:** dynamics.
- [lopes2010] Lopes A.M. Complete dynamic of a moving base 6-dof parallel manipulator. *Robotica*, 28(5):781–793, September 2010.
- [lorenz2016] Lorenz M. and others . Power manipulability analysis of redundantly actuated parallel kinematic manipulators with different types of actuators. In *IEEE Int. Conf. on Robotics and Automation*, Stockholm, May, 16-20, 2016.
- [lorenzo2001] Lorenzo J. and others . Hydraulic excavator dynamic model for a real time training simulator. In *Driving simulation Conf (DSC)*, pages 201–211, Sophia-Antipolis, September, 5-7, 2001.
- [losch95] Löscher S. Inverse force analysis of the general planar parallel manipulator. In *9th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 1831–1835, Milan, August 30- September 2, 1995.
- [losch95-1] Löscher S. Parallel redundant manipulator based on open and closed normal Assur chains. In J-P. Merlet B. Ravani, editor, *Computational Kinematics*, pages 251–260. Kluwer, 1995. **Keywords:** redundant robot.
- [lou2003] Lou Y.J., Liu G.F., and Li Z.X. Optimal design of parallel manipulators via LMI approach. In *IEEE Int. Conf. on Robotics and Automation*, pages 1869–1874, Taipei, September, 14-19, 2003.
- [lou2003-1] Lou Y.J., Liu G.F., and Li Z.X. An LMI based optimal design of parallel manipulators. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 2115–2120, Las Vegas, October 2003.
- [lou2004] Lou Y. and others . A general approach for optimal kinematic design of parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 3659–3664, New Orleans, April, 28-30, 2004.
- [lou2005] Lou Y. and others . Optimal design of a parallel machine based on multiple criteria. In *IEEE Int. Conf. on Robotics and Automation*, pages 3230–3235, Barcelona, April, 19-22, 2005.
- [lou2006] Lou Y. and others . Task space based contouring control of parallel machining systems. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Beijing, October, 9-15, 2006.
- [lou2007] Lou Y. and others . Development of a novel 3-dof purely translational parallel mechanism. In *IEEE Int. Conf. on Robotics and Automation*, pages 169–174, Roma, April, 10-14, 2007.

- [lou2014] Lou Y. and others . Optimization algorithms for kinematically optimal design of parallel manipulators. *IEEE Trans. on Automation Science and Engineering*, 11(2):574–584, April 2014.
- [lu-b2018] Lu B., Fang Y., and Sun N. Nonlinear control for underactuated multi-rope cranes: Modeling, theoretical design and hardware experiments. *Control Eng. Practice*, 76:123–132, 2018.
- [lu-l2019] Lu L. and others . Development of a emg-based torque estimation control strategy for a soft elbow exoskeleton. *Advanced Robotics*, 111:88–98, 2019.
- [lu2004] Lu Y. Using CAD functionalities for the kinematic analysis of spatial parallel manipulators with 3-,4-,5-,6-linearly driven limbs. *Mechanism and Machine Theory*, 39(1):41–60, January 2004.
- [lu2005] Lu Y. and Leinonen T. Solution and simulation of position-orientation for multi-spatial 3-RPS parallel mechanisms in series connection. *Multibody System Dynamics*, 14:47–60, 2005.
- [lu2006] Lu Y. Using CAD variation geometry for solving velocity and acceleration of parallel manipulators with 3-,4-,5-linearly driven limbs. *ASME J. of Mechanical Design*, 128(4):738–746, July 2006.
- [lu2006-1] Lu Y. and Hu B. Solving driving forces of 2(3-SPR) serial-parallel manipulator by CAD variation geometry approach. *ASME J. of Mechanical Design*, 128(6):1349–1351, November 2006.
- [lu2006-2] Lu Y. Using CAD variation geometry and analytic approach for solving kinematics of a novel 3-SPU/3-SPU parallel manipulator. *ASME J. of Mechanical Design*, 128(3):574–580, May 2006.
- [lu2007] Lu Y. and Hu B. Unified solving jacobian/hessian manipulators with n SPS active legs and a passive constrained leg. *ASME J. of Mechanical Design*, 129(1):1161–1169, November 2007.
- [lu2007-1] Lu Y. and Hu B. A unified approach to solving driving forces in spatial parallel manipulators with less than 6 DOFs. *ASME J. of Mechanical Design*, 129(1):1153–1160, November 2007.
- [lu2007-2] Lu Y. and Hu B. Analysing kinematics and solving active/constrained forces of a 3SPU+UPR parallel manipulator. *Mechanism and Machine Theory*, 42(10):1298–1313, October 2007.
- [lu2007-3] Lu Y., Hu B., and Shi Y. Kinematic analysis and statics of a 2SPS+UPR parallel manipulator. *Multibody System Dynamics*, 18(4):619–636, September 2007.
- [lu2007-4] Lu Y., Hu B., and Liu P-L. Kinematics and dynamics analyses of a parallel manipulator with three active legs and one passive leg by a virtual serial mechanism. *Multibody System Dynamics*, 17:229–241, 2007.
- [lu2008] Lu Y. and Hu B. Determining singularity of parallel manipulators with n linear active legs by using CAD variation geometry. *Int. J. of Robotics and Automation*, 23(3):160–167, 2008.
- [lu2008-2] Lu Y. and Hu B. Analysis of stiffness and elastic deformation for some 3-5-dof PKMs with  $\underline{SPR}$  or  $\underline{RPS}$ -type legs. *ASME J. of Mechanical Design*, 130(10):102307–1/8, October 2008.
- [lu2008-1] Lu Y. and others . Synthesis and analysis of kinematics/statics of a novel  $2\underline{PS} + \underline{SPR} + \underline{SP}$  parallel manipulator. *ASME J. of Mechanical Design*, 130(9):092302–1/8, September 2008.
- [lu2008-3] Lu Y., Shi Y., and Hu B. Kinematic analysis of two novel 3 UPU I and 3 UPU II PKMs. *Robotics and Autonomous Systems*, 56(4):296–305, April 2008.
- [lu2009] Lu Y. and others . Kinematics/statics of a 4-dof over-constrained parallel manipulator with 3 legs. *Mechanism and Machine Theory*, 44(8):1497–1506, August 2009.
- [lu2009-1] Lu Y. and others . Kinematics and statics analysis of a novel 4-dof 2SPS+2SPR parallel manipulator and solving its workspace. *Robotica*, 27(5):771–778, September 2009.
- [lu2009-2] Lu Y., Hu B., and Sun T. Analyses of velocity, acceleration, statics and workspace of a 2(3-SPR) serial-parallel manipulator. *Robotica*, 27(4):529–538, July 2009.
- [lu2009-3] Lu Y. and Hu B. Analyzing kinematics and solving active/constrained forces of a 4-dof 3SPS+SP parallel manipulator. *Robotica*, 27(1):29–36, January 2009.
- [lu2009-4] Lu Y. and others . Kinematics/statics of a 4-dof over-constrained parallel manipulator with 3 legs. *Mechanism and Machine Theory*, 44(8):1497–1506, August 2009.



- [lu2009-5] Lu Y., Hu B., and Yu J. Analysis of kinematics/statics and workspace of a 2(SP + SPR + SPU) serial-parallel manipulator. *Multibody System Dynamics*, 21:361–374, 2009.
- [lu2010] Lu Y., Li S-Y., and Shi Y. Determining singularities of some 3-dof parallel manipulators with linear active legs by 3x3 translational/3x3 rotational jacobian matrices. *Int. J. of Robotics and Automation*, 25(4):335–343, 2010.
- [lu2010-1] Lu J., Y.and Xu and Yu J. Using CAD geometric variation approach machining complex workpiece by a 3-SPR parallel machine-tool. *Robotics and Computer-Integrated Manufacturing*, 26(2):130136, April 2010.
- [lu2010-2] Lu B., Y.and Hu and Yu J. Unification and simplification of dynamics of limited-dof parallel manipulators with linear active legs. *Int. J. of Robotics and Automation*, 25(2):81–88, 2010.
- [lu2010-3] Lu Y., Y.and Shi and Yu J. Determination of singularities of some 4-dof parallel manipulators by translational/rotational jacobian matrices. *Robotica*, 28(6):811–889, October 2010.
- [lu2012] Lu Y.and others. Computational derivation of valid kinematic limbs of spatial 3-dof parallel mechanisms without redundant constraints. *Robotica*, 30(4):559–569, July 2012.
- [lu2013] Lu Y.and others. Static and stiffness analysis of a novel six-component force/torque sensor with 3-RPPS compliant parallel structure. *Mechanism and Machine Theory*, 62:90–111, April 2013.
- [lu2013-1] Lu Y.and others. Kinematics/statics and workspace analysis of a 3-leg 5-dof parallel manipulator with a UPU-type composite active constrained leg. *Robotica*, 31(2):183–191, March 2013.
- [lu2014] Lu Y. Kinetostatic analysis of a novel 6-dof 3UPS parallel manipulator with multi-fingers. *Mechanism and Machine Theory*, 78:36–50, August 2014.
- [lu2014-1] Lu Y. and others . Kinematics and statics analysis of a novel 5-dof parallel manipulator with two composite rotational/linear active legs. *Robotics and Computer-Integrated Manufacturing*, 30(1):25–33, February 2014.
- [lu2014-2] Lu Y. and Li X.P. Dynamics analysis for a novel 6-dof parallel manipulator i with three planar limbs. *Advanced Robotics*, 28(16):1121–1132, 2014.
- [lu2016] Lu Y. and Dai Z. Dynamic model of redundant hybrid manipulator connected in series by three or more different parallel manipulators with linear active legs. *Mechanism and Machine Theory*, 103:222–235, 2016.
- [lu2016-1] Lu Y. and Ye N. Dynamics analysis of a novel 5-DoF 3SPU+2SPRR type parallel manipulator. *Advanced Robotics*, 30(9):595–607, 2016.
- [lu2017] Lu Z., Y.and Dai and Ye N. Stiffness analysis of parallel manipulators with linear limb by considering inertial wrench of moving link and constrained wrench. *Robotics and Computer-Integrated Manufacturing*, 46:58–67, 2017.
- [lu2017-1] Lu N., Y.and Ye. Type synthesis of parallel mechanism by using sub-mechanisms and digital topological graphs. *Mechanism and Machine Theory*, 109:39–50, 2017.
- [lu2017-2] Lu Z., Y.and Dai and Ye N. Stiffness analysis of parallel manipulators with linear limbs by considering inertial wrench of moving links and constrained wrench. *Robotics and Computer-Integrated Manufacturing*, 46:58–67, 2017.
- [lu2017-3] Lu N., Y.and Ye. Type synthesis of parallel mechanisms by utilizing sub- mechanisms and digital topological graphs. *Mechanism and Machine Theory*, 109:39–50, 2017.
- [lu2017-4] Lu N., Y.and Ye and Ding L. Type synthesis of spatial 3-DoF parallel mechanisms with planar sub-chains using revised digital topological graphs and arrays. *Robotica*, 35:370–383, 2017.
- [lu2018] Lu Y.and others. Dynamics analysis of a novel 5-dof parallel manipulator with couple-constrained wrench. *Robotica*, 36:1421–1435, 2018.
- [lubrano2010] Lubrano E. and Clavel R. Thermal calibration of a 3 dof ultra high-precision robot operating in industrial environment. In *IEEE Int. Conf. on Robotics and Automation*, pages 3692–3697, Anchorage, May, 3-8, 2010.

- [lubrano2011] Lubrano E., Bouri M., and Clavel R. Ultra-high-precision industrial robots calibration. In *IEEE Int. Conf. on Robotics and Automation*, pages 228–233, Shanghai, May, 9-13, 2011.
- [luc2017] Luc2017 M., J.K Mills., and Benhabib B. A review of redundant parallel kinematic mechanisms. *J. of Intelligent and Robotic Systems*, 86:175–188, 2017.
- [luckel2001] Lückel J. and others . Iterative model-based design of the parallel robot, TriPlanar. In *IEEE/ASME Int. Conf. on Advanced Intelligent Mechatronics*, pages 135–140, Como, July, 8-12, 2001.
- [luh96] Luh C.M., Adkins F.A., Haugh E.J., and Qiu C.C. Working capability analysis of Stewart platforms. *ASME J. of Mechanical Design*, 118(2):221–227, June 1996.
- [lumsden95] Lumsden C.J. CELLSIM: Virtual cells for research and molecular therapy design. *J. of Medecine and Virtual Reality*, 1(1):6–10, 1995.
- [luttmer2020] Luttmer N.G. and others . Treadmill based three tether parallel robot for evaluating auditory warnings while running. In *IEEE Int. Conf. on Robotics and Automation*, Paris, May 31- August 31, 2020.
- [lv2017] Lv W., Tao L., and Ji Z. Design and control of cable-driven parallel robot with 6-dof active wave compensation. In *3rd International Conference on Control, Automation and Robotics*, 2017.
- [lyder2009] Lyder A., Petersen H.K., and Stoy K. Representation and shape estimation of Odin, a parallel under-actuated modular robot. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, St Louis, October, 11-15, 2009.
- [lytle2008] Lytle A., Proctor F., and Saidi K. *Parallel manipulators, Towards new applications*, chapter Control of cable robots for construction applications, pages 1–20. ITECH, April 2008. **Keywords:** wire robot,applications,hardware,control.
- [ma-n2018] Ma N. and others . Design and stiffness analysis of a class of 2-DoF tendon driven parallel kinematics mechanism. *Mechanism and Machine Theory*, 129:202–217, 2018.
- [ma-y-2018] Ma Y. and others . Static and dynamic performance evaluation of a 3-DOF spindle head using CAD–CAE integration methodology. *Robotics and Computer-Integrated Manufacturing*, 41:1–12, 2018.
- [ma89] Ma O. and Angeles J. Direct kinematics and dynamics of a planar three-dof parallel manipulator. In *ASME Design and Automation Conf.*, volume 3, pages 313–320, Montréal, September, 17-20, 1989.
- [ma91] Ma O. and Angeles J. Architecture singularities of platform manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 1542–1547, Sacramento, April, 11-14, 1991.
- [ma91-1] Ma O. and Angeles J. Optimum architecture design of platform manipulator. In *ICAR*, pages 1131–1135, Pise, June, 19-22, 1991.
- [mac79] McCallion H. and Pham D.T. The analysis of a six degrees of freedom work station for mechanized assembly. In *5th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 611–616, Montréal, July 1979.
- [machida92] Machida K. and others . New robotic mechanism using a parallel moving platform. In *IMACS/SICE Int. Symp. on Robotics, Mechatronics, and Manufacturing Systems*, pages 425–430, Kobe, September, 16-20, 1992.
- [machida94] Machida K. Space-borne smart end effector. *Advanced Robotics*, 8(6):605, December 1994.
- [macho2007] Macho E. and others . Singularity free change of assembly mode in parallel manipulators. Application to the 3 – *RPR* planar platform. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [macho2008] Macho E. and others . Transitions between multiple solutions of the direct kinematic problem. In *ARK*, Batz/mer, June, 23-26, 2008.
- [macho2009] Macho E. and others . Obtaining configuration space and singularity maps for parallel manipulators. *Mechanism and Machine Theory*, 44(11):2110–2125, November 2009.

- [macho2011] Macho E. and others . Software tool to compute, analyze and visualize workspace of parallel kinematics robots. *Advanced Robotics*, 25(6-7):675–698, 2011.
- [macho2013] Macho E. and others . Enhancing operational workspace in parallel manipulator by connecting working modes. *Robotica*, 31(4):539–548, July 2013.
- [macho2019] Macho E. and others . Designing a translational parallel manipulator based on the 3ss kinematic joint. *J. of Mechanisms and Robotics*, 11(5), October 2019.
- [madsen2012] Madsen A.L. and Kristensen S.G. Design of Stewart platform for wave compensation. Master’s thesis, Aalborg University, Aalborg, 2012. **Keywords:** applications,marine.
- [maeda92] Maeda K. and others . An analysis of passive impedance of 6-dof direct-drive wrist joint. In *IMACS/SICE Int. Symp. on Robotics, Mechatronics, and Manufacturing Systems*, pages 433–438, Kobe, September, 16-20, 1992.
- [maeda93] Maeda K. and others . Time delay control of a 6 d.o.f. direct drive wrist joint using pneumatic actuators. In *ICAR 93*, pages 159–164, Tokyo, November, 1-2, 1993.
- [maeda99] Maeda K. and others . On design of a redundant wire-driven parallel robot WARP manipulator. In *IEEE Int. Conf. on Robotics and Automation*, Detroit, May, 10-15, 1999.
- [maier98] Maier T. and Woernle C. Inverse kinematics for an underconstrained cable suspension manipulator. In *ARK*, pages 97–104, Strobl, June 29- July 4, 1998.
- [majou2002] Majou F., Wenger P., and Chablat D. Design of 2-dof parallel mechanisms for machining applications. In *ARK*, pages 319–328, Caldes de Malavalla, June 29- July 2, 2002.
- [majou2004-phd] Majou F. *Analyse cinétostatique des machines parallèles à translations*. Ph.D. Thesis, Ecole Centrale, Nantes, September, 24, 2004. **Keywords:** 3 dof robot,performance analysis,stiffness,optimal design.
- [maloletov2019] Malosio A.V. and others . Error analysis in solving the inverse problem of the cable-driven parallel underactuated robot kinematics and methods for their elimination. In *9th IFAC Conf. on Manufacturing Modelling, Management and Control*, Berlin, August, 28-30, 2019.
- [malosio2013] Malosio M. and others . A 3T2R parallel and partially decoupled kinematic architecture. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 444–449, Tokyo, November, 3-7, 2013.
- [manubens2013] Manubens M. and others . Motion planning for 6-D manipulation with aerial towed-cable systems. In *Robotics: Science and Systems*, Berlin, June 2013.
- [mao2011] Mao Y. and Agrawal S.K. A cable driven upper arm exoskeleton for upper extremity rehabilitation. In *IEEE Int. Conf. on Robotics and Automation*, Shanghai, May, 9-13, 2011.
- [mao2012] Mao Y. and Agrawal S.K. Design of a cable-driven arm exoskeleton (CAREX) for neural rehabilitation. *IEEE Trans. on Robotics*, 28(4):922–931, August 2012.
- [mao2015] Mao Y. and others . Human movement training with a cable driven ARm EXoskeleton (CAREX). *IEEE Trans. on Neural Systems and Rehabilitation Engineering*, 23(1):84–92, 2015.
- [marchalcespo2013] Marchal-Crespo L. and others . The effect of haptic guidance and visual feedback on learning a complex tennis task. *Experimental Brain Research*, 3:277–291, 2013.
- [marchegiani76] Marchegiani D. Motion simulator, July, 6, 1976. United States Patent n° 3,967,387. **Keywords:** mechanical architecture,6 dof robot,patent.
- [marco89] Marco D, Torfason L., and Tesar D. Computer simulation and design of a three d.o.f. shoulder module. In *NASA Conference on Space Telerobotics*, volume 5, pages 273–282, Pasadena, January, 31, 1989.
- [marconi85] Marconi . The Gadfly manipulator. Research Report 732, Marconi Research Centre, 1985.
- [marconi86] Marconi . Development of the Tetrabot robotic manipulator. Research report, Marconi Research Centre, 1986.

- [marlow2014] Marlow K. and others . Workspace analysis of two similar 3-dof axis-symmetric parallel manipulators. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Chicago, September, 14-18, 2014.
- [marquet2001] Marquet F. and others . Archi: a new redundant parallel mechanism -modeling, control and first results. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Maui, Hawaii, October 29- November 3, 2001.
- [marquet2002] Marquet F. and others . Enhancing parallel robots accuracy with redundant sensors. In *IEEE Int. Conf. on Robotics and Automation*, pages 4114–4119, Washington, May, 11-15, 2002.
- [marquet2002-1] Marquet F. and others . Control of a 3-dof over-actuated parallel mechanism. In *ASME Design Engineering Technical Conference*, Montréal, September 29- October 2, 2002.
- [martin-a2017] Martin A., Caro S., and Cardou P. Geometric determination of the cable cylinder interference regions in the workspace of a cable driven parallel robot. In *3rd Int. Conf. on cable-driven parallel robots (CableCon)*, Québec, 2017.
- [martin-a2018] Martin A., Caro S., and Cardou P. Design of a cable-driven parallel robot with grasping device. In *28th CIRP Design Conf.*, Nantes, 2018.
- [martin-th2013] Martin ., Th and others . Silicon linkage with novel compliant mechanism for piezoelectric actuation of an intraocular implant. *Sensors and Actuators A*, 188:335–341, 2012.
- [martin2006] Martin Y.S. and others . VERNE, a new 5-axes hybrid architecture machining center. In *5th Chemnitzer Parallelkinematik Seminar*, pages 657–676, Chemnitz, April, 25-26, 2006.
- [martinez95] Martinez J.M.R. and Duffy J. A simple method for the velocity and acceleration analysis of in-parallel platforms. In *9th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 842–846, Milan, August 30- September 2, 1995.
- [martinez2000] Martinez J.M.R. and Duffy J. Forward and inverse acceleration analysis of in-parallel manipulators. *ASME J. of Mechanical Design*, 122(3):299–303, September 2000.
- [martinez2003] Martinez J.M.R. and Ravani B. On mobility analysis of linkages using group theory. *ASME J. of Mechanical Design*, 125(1):70–80, March 2003.
- [martini2015] Martini A. and others . Static balancing of a parallel kinematics machine with Linear Delta architecture: theory, design and numerical investigation. *Mechanism and Machine Theory*, 90:128–141, 2015.
- [masone2016] Masone C., Bühlhoff H.H., and Stegagno P. Cooperative transportation of a payload using quadrotors: a reconfigurable cable-driven parallel robot. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Daejeon, October, 9-14, 2016.
- [masory92] Masory O. and Wang J. Workspace evaluation of Stewart platforms. In *22nd Biennial Mechanisms Conf.*, pages 337–346, Scottsdale, September, 13-16, 1992.
- [masory93] Masory O., Wang J., and Zhuang H. On the accuracy of a Stewart platform-part II: Kinematic calibration and compensation. In *IEEE Int. Conf. on Robotics and Automation*, pages 725–731, Atlanta, May, 2-6, 1993.
- [masory93-1] Masory O. and others . Design and construction of a Space Emulator. In *American Control Conf.*, pages 1825–1829, San Francisco, June, 2-4, 1993.
- [masory95] Masory O. and Wang J. Workspace evaluation of Stewart platforms. *Advanced Robotics*, 9(4):443–461, 1995.
- [masory95-1] Masory O. and Jihua Y. Measurement of pose repetability of Stewart platforms. *J. of Robotic Systems*, 12(12):821–832, 1995.
- [masory97] Masory O., Wang J., and Zhuang H. Kinematic modeling and calibration of a Stewart platform. *Advanced Robotics*, 11(5):519–539, 1997.
- [mass2006] Maass J. and others . Control strategies for enlarging a spatial parallel robot’s workspace by change of configuration. In *5th Chemnitzer Parallelkinematik Seminar*, pages 515–530, Chemnitz, April, 25-26, 2006.

- [masuda2000] Masuda T., Fujiwara M., and Arai T. Specific kinematic changes in a linear-actuated parallel mechanism according to differences in actuator arrangement. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Takamatsu, Japan, October 30- November 5, 2000.
- [masuda2002] Masuda T. and others . Mechanism configuration evaluation of a linear-actuated parallel mechanism using manipulability. In *IEEE Int. Conf. on Robotics and Automation*, pages 489–495, Washington, May, 11-15, 2002.
- [mata2008] Mata V. and others . *Parallel manipulators, Towards new applications*, chapter Dynamic parameter identification for parallel manipulators, pages 21–44. ITECH, April 2008. **Keywords:** calibration,dynamics,state of the art.
- [mathey95] Mathey C. Les simulateurs d’entrainement. *Revue technique Thomson-CSF*, 25(2):683–705, June 1995.
- [match2015] Match S. and others . A new single-port robotic system based on a parallel kinematic structure. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Hamburg, Germany, September 28- October 2, 2015.
- [match2016] Match S. and others . 3-d force measurement using single axis force sensors in a new single port parallel kinematics surgical manipulator. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Daejeon, October, 9-14, 2016.
- [matone99] Matone R. and Roth B. In-parallel manipulators: a framework on how to model actuation scheme and a study of their effects on singular postures. *ASME J. of Mechanical Design*, 121(1):2–8, March 1999.
- [mattiazzo2007] Mattiazzo G. and others . A pneumatically actuated motion simulator. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [maurin-2004] Maurin B. and others . A parallel robotic system with force sensors for percutaneous procedures under CT guidance. In *MICCAI*, pages 176–183, St Malo, September, 26-29, 2004.
- [maurin2006] Maurin B. and others . A robotized positioning platform guided by computed tomography : Practical issues and evaluation. In *IEEE Int. Conf. on Robotics and Automation*, pages 251–256, Orlando, May, 16-18, 2006.
- [maurine96] Maurine P. and Dombre E. A calibration procedure for the parallel robot Delta 4. In *IEEE Int. Conf. on Robotics and Automation*, pages 975–980, Minneapolis, April, 24-26, 1996.
- [maurine96-1] Maurine P. and Dombre E. A registration and calibration procedure for a parallel robot. In *6th ISRAM*, pages 447–452, Montpellier, May, 28-30, 1996.
- [maurine99] Maurine P., Abe K., and Uchiyama M. Toward more accurate parallel robots. In *15th World Congress of Int. Measurement Confederation*, Osaka, June 1999.
- [mavroidis98] Mavroidis C. Completely specified displacements of a rigid body and their application in the direct kinematics of in-parallel mechanisms. In *ASME Design Engineering Technical Conference*, Atlanta, September, 13-16, 1998.
- [mavroidis99] Mavroidis C. Completely specified displacements of a rigid body and their application in the direct kinematics of in-parallel mechanisms. *ASME J. of Mechanical Design*, 121(4):485–491, December 1999.
- [mavroidis2001] Mavroidis C. and others . Fabrication of non-assembly mechanisms and robotic systems using rapid prototyping. *ASME J. of Mechanical Design*, 123(4):516–524, December 2001.
- [mayer96] Mayer St-Onge B. and Gosselin C. Singularity analysis and representation of spatial six-dof parallel manipulators. In *ARK*, pages 389–398, Portoroz-Bernadin, June, 22-26, 1996.
- [mayer2000] Mayer St-Onge B. and Gosselin C.M. Singularity analysis and representation of the general Gough-Stewart platform. *Int. J. of Robotics Research*, 19(3):271–288, March 2000.
- [mayhew2005] Mayhew D. and others . Development of the MACARM- a novel cable-robot for upper-link neurorehabilitation. In *Int. Conf. on Rehabilitation Robotics*, pages 299–302, Chicago, June 28- July 1, 2005.

- [maza99] Maza M., Fontaine J.-G., and Baselga S. Motion transmission in VR systems: the spherical platform concept. In *ISMCR Topical Workshop on VR and Advanced Human-robot Systems*, pages 299–305, Budapest, 1999.
- [mazare2017] Mazare M., Taghizadeh M., and Najafi M.R. Contouring control of a 3-[P2(US)] parallel manipulator. *Advanced Robotics*, 31(9):496–508, 2017.
- [mazare2019] Mazare M., Taghizadeh M., and Najafi M.R. Inverse dynamics of a 3-P[2(US)] translational parallel robot. *Robotica*, 37:708–728, 2019.
- [mazare2019-1] Mazare M. and Taghizadeh M. Geometric optimization of a Delta type parallel robot using harmony search algorithm. *Robotica*, 37:1494–1512, 2019.
- [mbarek2005] Mbarek T., Nefzi M., and Corves B. Kinematic analysis and workspace determination of a parallel manipulator with five degree of freedom. In *Computational Kinematics*, Cassino, May, 4-6, 2005.
- [mbarek2007] Mbarek T., Nefzi M., and Corves B. Kinematics and kinetics of a high-dynamic sewing plant for FRC materials based on parallel manipulator. In *2nd Int. Congress, Design and Modelling of mechanical systems*, Monastir, March, 19-21, 2007.
- [mbarek2007-1] Mbarek T., Lonij G., and Corves B. Singularity analysis of a fully parallel manipulator with five-degrees-of-freedom based on Grassmann line geometry. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [mcaree96] McAree P.R. and Daniel R.W. A fast, robust solution to the Stewart platform forward kinematics. *J. of Robotic Systems*, 13(7):407–427, July 1996.
- [mcaree99] McAree P.R. and Daniel R.W. An explanation of never-special assembly changing motions of the 3-3 parallel manipulators. *Int. J. of Robotics Research*, 18(6):556–574, June 1999.
- [mccann2017] McCann C.M. and Dollar A.M. Design of a Stewart platform-inspired dexterous hand for 6-dof within-hand manipulation. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Vancouver, September, 24-28, 2017.
- [mccarthy2000] McCarthy J.M. Mechanism synthesis theory and the design of robots. In *IEEE Int. Conf. on Robotics and Automation*, pages 55–60, San Francisco, April, 24-28, 2000.
- [mccloy90] McCloy D. Some comparisons of serial-driven and parallel driven manipulators. *Robotica*, 8(4):355–362, 1990.
- [mccoll2009] McColl D. and Notash L. Extension of the Antipodal theorem to workspace analysis of planar wire-actuated manipulators. In *Computational Kinematics*, pages 9–16, Duisburg, May, 6-8, 2009.
- [mccoll2011] McColl D. and Notash L. Workspace formulation of planar wire-actuated parallel manipulators. *Robotica*, 29(4):607–617, July 2011.
- [mcinroy2000] McInroy J. E. and Hamann J.C. Design and control of flexure jointed hexapods parallel manipulator. *IEEE Trans. on Robotics and Automation*, 16(4):372–381, August 2000.
- [mcinroy2002] McInroy J. E. Modeling and design of flexure jointed Stewart platforms for control purposes. *IEEE/ASME Trans. on Mechatronics*, 7(1):95–99, March 2002.
- [mcinroy2005] McInroy J. E., Jafari F., and O’Brien J. Tri-symmetric orthogonal Gough-Stewart platforms. In *IEEE Int. Conf. on Robotics and Automation*, pages 948–953, Barcelona, April, 19-22, 2005.
- [mejia2014] Mejia L., Simas H., and Martins D. Force capability polytope of a 4 –  $\underline{RRR}$  redundant planar parallel manipulator. In *ARK*, pages 87–94, Ljubljana, June 29- July 3, 2014.
- [mejia2016] Mejia L., Simas H., and Martins D. Wrench capability in redundant planar parallel manipulators with net degree of constraint equal to four, five or six. *Mechanism and Machine Theory*, 105:58–79, 2016.
- [mejia2022] Mejia L. and others . Best operation regions in a planar cable driven system. In *ARK*, Bilbao, June, 26-30, 2022.

- [mendes-lobes96] Mendes Lopes A. and Gomes de Almeida F. Manipulability optimization of a parallel structure robotic manipulator. In *2nd Portugese Automatic Control Conf.*, Porto, September 1996.
- [meng-j2005] Meng J., Liu G.F., and Li Z. A geometric theory for synthesis and analysis of sub-6 dof parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 2949–2954, Barcelona, April, 19–22, 2005.
- [meng-j2007] Meng J. and others . Accuracy analysis of general parallel manipulators with joint clearance. In *IEEE Int. Conf. on Robotics and Automation*, pages 889–894, Roma, April, 10–14, 2007.
- [meng-j2007-1] Meng J., Liu G.F., and Li Z. A geometric theory for analysis and synthesis of sub-6 dof parallel manipulators. *IEEE Trans. on Robotics*, 23(4):625–649, August 2007.
- [meng-j2007-2] Meng J., Zhang D., and Li X. Assembly problem of overconstrained and clearance-free parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 1183–1188, Roma, April, 10–14, 2007.
- [meng-j2009] Meng J., Zhang D., and Li Z. Accuracy analysis of parallel manipulators with joint clearance. *ASME J. of Mechanical Design*, 131(1):011013–1/011013–9, January 2009.
- [meng-q2016] Meng Q. and others . Adaptive vector sliding mode fault-tolerant control of the uncertain Stewart platform based on position measurement only. *Robotica*, 34(6):1297–1320, June 2016.
- [meng-q2020] Meng Q. and others . An evaluation approach for motion-force interaction performance of parallel manipulators with closed-loop passive limbs. *Mechanism and Machine Theory*, 149, 2020.
- [meng-q2020-1] Meng Q. and others . Motion–force interaction performance analyses of redundantly actuated and overconstrained parallel robots with closed-loop subchains. *ASME J. of Mechanical Design*, 142, October 2020.
- [meng-q2022] Meng Q., Liu X-J., and Xie F. Design and development of a Schönflies-motion parallel robot with articulated platforms and closed-loop passive limbs. *Robotics and Computer-Integrated Manufacturing*, 77, October 2022.
- [meng2003] Meng G., Tiemin L., and Wensheng Y. Calibration method and experiment of Stewart platform using a laser tracker. In *Int. Conf on Systems, Man and Cybernetics*, pages 2797–2802, The Hague, October, 10–13, 2003.
- [mengx-2014] Meng X. and others . Type synthesis of parallel robotic mechanisms: framework and brief review. *Mechanism and Machine Theory*, 78:177–186, 2014.
- [menon2009] Menon C. and others . Geometrical optimization of parallel mechanism based on natural frequency evaluation. application to a spherical mechanism for future space applications. *IEEE Trans. on Robotics*, 25(2):929–940, February 2009.
- [merkle94] Merkle R.C. A new family of six degree of freedom positional devices. 1994, <http://nano.xerox.com/nanotech/6dof.html>. **Keywords:** mechanical architecture, redundant robot.
- [merlet86-phd] Merlet J-P. *Contribution à la commande par retour d’efforts. Application au contrôle des robots parallèles*. Ph.D. Thesis, Université Paris VI, Paris, June, 18, 1986. **Keywords:** control, kinematics, force feedback.
- [merlet87] Merlet J-P. Parallel manipulators, Part 1, theory. Research Report 646, INRIA, March 1987.
- [merlet87-1] Merlet J-P. Kinematics, singular configurations and compliance of parallel manipulators. In *ICAR*, pages 125–136, Versailles, October, 13–15, 1987.
- [merlet87-3] Merlet J-P. Robots parallèles. In *AFCET RFIA*, pages 569–574, Antibes, November, 18–20, 1987.
- [merlet88] Merlet J-P. Parallel manipulators, Part 2, Singular Configurations and Grassmann geometry. Research Report 791, INRIA, February 1988.
- [merlet88-1] Merlet J-P. Force-feedback control of parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 1484–1489, Philadelphia, April, 24–29, 1988.

- [merlet89] Merlet J-P. Manipulateurs parallèles, 3eme partie : applications. Research Report 1003, INRIA, March 1989.
- [merlet89-1] Merlet J-P. Manipulateurs parallèles, 4eme partie : mode d'assemblage et cinématique directe sous forme polynomiale. Research Report 1135, INRIA, December 1989.
- [merlet89-2] Merlet J-P. Singular configurations of parallel manipulators and Grassmann geometry. In Boissonnat J-D. and J-P.Laumond , editors, *Geometry and Robotics*, volume LNCS 391, pages 194–212. Springer-Verlag, 1989. **Keywords:** singularity,grassmann geometry.
- [merlet89-3] Merlet J-P. Singular configurations of parallel manipulators and Grassmann geometry. *Int. J. of Robotics Research*, 8(5):45–56, October 1989.
- [merlet90] Merlet J-P. *Les Robots parallèles*. Hermès, Paris, 1990.
- [merlet90-1] Merlet J-P. Assembly modes and minimal polynomial formulation of the direct kinematics of parallel manipulators. In *CSME Mechanical Engineering Forum 1990*, pages 343–348, Toronto, June, 3-9, 1990.
- [merlet90-2] Merlet J-P. Assembly modes and direct kinematics of parallel manipulators. In *ISRAM*, volume 3, pages 43–48, Burnaby, July, 18-20, 1990. ASME Press Series.
- [merlet90-3] Merlet J-P. Symbolic computation for the determination of the minimal direct kinematics polynomial and the singular configurations of parallel manipulators. In *ARK*, Linz, September, 10-12, 1990.
- [merlet90-4] Merlet J-P. An algorithm for the forward kinematics of general 6 d.o.f. parallel manipulators. Research Report 1331, INRIA, November 1990.
- [merlet91] Merlet J-P. and Gosselin C. Nouvelle architecture pour un manipulateur parallèle à 6 degrés de liberté. *Mechanism and Machine Theory*, 26(1):77–90, 1991.
- [merlet91-1] Merlet J-P. An algorithm for the forward kinematics of general parallel manipulators. In *ICAR*, pages 1131–1135, Pise, June, 19-22, 1991.
- [merlet91-2] Merlet J-P. Articulated device, for use in particular in robotics, October, 1, 1991. United States Patent n° 5,053,687. **Keywords:** mechanical architecture,6 dof robot,patent.
- [merlet92] Merlet J-P. Manipulateurs parallèles, 5eme partie : Détermination de l'espace de travail à orientation constante. Research Report 1645, INRIA, March 1992.
- [merlet92-1] Merlet J-P. Direct kinematics and assembly modes of parallel manipulators. *Int. J. of Robotics Research*, 11(2):150–162, April 1992.
- [merlet92-2] Merlet J-P. On the infinitesimal motion of a parallel manipulator in singular configurations. In *IEEE Int. Conf. on Robotics and Automation*, pages 320–325, Nice, May, 12-14, 1992.
- [merlet92-3] Merlet J-P. Geometrical determination of the workspace of a constrained parallel manipulator. In *ARK*, pages 326–329, Ferrare, September, 7-9, 1992.
- [merlet92-4] Merlet J-P. Parallel manipulators: state of the art and perspective. In *IMACS/SICE Int. Symp. on Robotics, Mechatronics, and Manufacturing Systems*, pages 403–408, Kobe, September, 16-20, 1992.
- [merlet92-6] Merlet J-P. Parallel manipulators: state of the art and perspective. *Journal of Robotics Society of Japan*, 10(6):57–62, October 1992.
- [merlet92-7] Merlet J-P. Geometry and Kinematic singularities of closed-loop manipulators. *J. of Laboratory Robotic and Automation*, 4(1):85–96, 1992.
- [merlet93] Merlet J-P. Closed-form resolution of the direct kinematics of parallel manipulators using extra sensors data. In *IEEE Int. Conf. on Robotics and Automation*, pages 200–204, Atlanta, May, 2-7, 1993.
- [merlet93-1] Merlet J-P. Manipulateurs parallèles, 6eme partie : Détermination des espaces de travail en orientation. Research Report 1921, INRIA, May 1993.
- [merlet93-2] Merlet J-P. Manipulateurs parallèles, 7eme partie : Vérification et planification de trajectoire dans l'espace de travail. Research Report 1940, INRIA, June 1993.



- [merlet93-3] Merlet J-P. Algebraic geometry for the study of kinematics of parallel manipulators. In J. Angeles P. Kovacs, G. Hommel, editor, *Computational Kinematics*, pages 183–194. Kluwer, 1993.
- [merlet93-4] Merlet J-P. Orientation workspace of a parallel manipulator with a fixed point. In *ICAR*, pages 141–146, Tokyo, November, 1-2, 1993.
- [merlet93-5] Merlet J-P. Forward kinematics of non-polyhedral parallel manipulators. *ASME J. of Mechanical Design*, 115(4):938–940, December 1993.
- [merlet93-6] Merlet J-P. Direct kinematics of parallel manipulators. *IEEE Trans. on Robotics and Automation*, 9(6):842–845, December 1993.
- [merlet93-7] Merlet J-P. Parallel manipulators: state of the art and perspective. In Takamori T. and Tsuchiya K., editors, *Robotics, Mechatronics and Manufacturing Systems*. Elsevier, 1993. **Keywords:** state of the art.
- [merlet93-h] Merlet J-P. Les robots parallèles, June, 21, 1993. Habilitation à diriger les recherches, UNSA, Nice.
- [merlet94] Merlet J-P. Some algebraic problems arising in the field of mechanisms theory. In *MEGA*, Santander, April, 5-9, 1994.
- [merlet94-1] Merlet J-P. Trajectory verification in the workspace of parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 2166–2171, San Diego, May, 8-13, 1994.
- [merlet94-2] Merlet J-P. and Mouly N. Espaces de travail et planification de trajectoire des robots parallèles plans. Research Report 2291, INRIA, February 1994.
- [merlet94-3] Merlet J-P. Parallel manipulators: state of the art and perspective. *Advanced Robotics*, 8(6):589–596, December 1994.
- [merlet94-4] Merlet J-P. Trajectory verification in the workspace for parallel manipulators. *Int. J. of Robotics Research*, 13(4):326–333, August 1994.
- [merlet94-5] Merlet J-P. Détermination de l’espace de travail d’un robot parallèle pour une orientation constante. *Mechanism and Machine Theory*, 29(8):1099–1113, November 1994.
- [merlet95] Merlet J-P. Designing a parallel robot for a specific workspace. Research Report 2527, INRIA, April 1995.
- [merlet95-1] Merlet J-P. Determination of the orientation workspace of parallel manipulators. *J. of Intelligent and Robotic Systems*, 13(1):143–160, September, 4-6, 1995.
- [merlet95-2] Merlet J-P. Designing a parallel robot for a specific workspace. In J-P. Merlet B. Ravani, editor, *Computational Kinematics*, pages 203–212. Kluwer, 1995.
- [merlet96-1] Merlet J-P. Direct kinematics of planar parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 3744–3749, Minneapolis, April, 24-26, 1996.
- [merlet96-2] Merlet J-P. Workspace-oriented methodology for designing a parallel manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 3726–3731, Minneapolis, April, 24-26, 1996.
- [merlet96-3] Merlet J-P. Workspace-oriented methodology for designing a parallel manipulator. In *IDMME*, Nantes, April, 15-17, 1996.
- [merlet96-4] Merlet J-P. Redundant parallel manipulators. *J. of Laboratory Robotic and Automation*, 8(1):17–24, 1996.
- [merlet96-5] Merlet J-P., Gosselin C., and Mouly N. Workspaces of planar parallel manipulators. In *11th RoManSy*, pages 37–44, Udine, July, 1-4, 1996.
- [merlet96-6] Merlet J-P. Some algebraic problems arising in the field of mechanisms theory. In *Progress in Mathematics*, volume 143. Birkhäuser Verlag, 1996. **Keywords:** mechanism theory.
- [merlet96-7] Merlet J-P. Designing a parallel manipulator for a specific workspace. In *ISRAM*, pages 441–446, Montpellier, May, 28-30, 1996.
- [merlet97] Merlet J-P. *Les Robots parallèles*. Hermès, Paris, 1997.

- [merlet97-1] Merlet J-P. Articular velocities of parallel manipulators, Part II: Finding all the robots with fixed extremal articular velocity for performing a fixed cartesian velocity over a whole workspace. In *IEEE Int. Conf. on Robotics and Automation*, pages 3262–3267, Albuquerque, April, 21-28, 1997.
- [merlet97-2] Merlet J-P. First experiments with MIPS 1 (Mini In-Parallel Positionning System). In *ISER*, pages 372–379, Barcelone, June, 15-18, 1997.
- [merlet97-3] Merlet J-P. Democrat: A DESign Methodology for the Conception of robots with parallel ArchiTecture. *Robotica*, 15(4):367–373, July - August, 1997.
- [merlet97-4] Merlet J-P. Robot parallèle: Etat de l'art. In 13<sup>ème</sup> *Congrès Français de Mécanique*, volume 1, pages 331–334, Poitiers, September, 1-5, 1997.
- [merlet97-5] Merlet J-P. Designing a parallel manipulator for a specific workspace. *Int. J. of Robotics Research*, 16(4):545–556, August 1997.
- [merlet97-6] Merlet J-P. Estimation efficace des caractéristiques de robots parallèles: Extremums des raideurs et des coordonnées, vitesses, forces articulaires et singularités dans un espace de travail en translation. Research Report 3243, INRIA, September 1997.
- [merlet97-7] Merlet J-P. Democrat: A DESign Methodology for the Conception of robots with parallel ArchiTecture. In *IROS*, pages 1630–1636, Grenoble, September, 7-11, 1997.
- [merlet97-8] Merlet J-P. Miniature in-parallel positionning system MIPS for minimally invasive surgery. In *World Congress on Medical Physics and Biomedical Engineering*, Nice, September, 14-19, 1997.
- [merlet97-9] Merlet J-P. Determination of the presence of singularities in a workspace volume of a parallel manipulator. In *NATO-ASI, Computational methods in mechanisms*, Sts. Konstantin and Elena Resort, June, 16-28, 1997.
- [merlet98] Merlet J-P., Gosselin C., and Mouly N. Workspaces of planar parallel manipulators. *Mechanism and Machine Theory*, 33(1/2):7–20, January 1998.
- [merlet98-1] Merlet J-P. Efficient computation of the extremum of the articular velocities of a parallel manipulator in a translation workspace. In *IEEE Int. Conf. on Robotics and Automation*, pages 1976–1981, Louvain, May, 18-20, 1998.
- [merlet98-2] Merlet J-P. Efficient estimation of the extremal articular forces of a parallel manipulator in a translation workspace. In *IEEE Int. Conf. on Robotics and Automation*, pages 1982–1987, Louvain, May, 18-20, 1998.
- [merlet98-3] Merlet J-P. Determination of the presence of singularities in 6D workspace of a Gough parallel manipulator. In *ARK*, pages 39–48, Strobl, June 29- July 4, 1998.
- [merlet98-4] Merlet J-P. Determination of 6D workspaces of a Gough-type 6 d.o.f. parallel manipulator. In *12th RoManSy*, pages 261–268, Paris, July, 6-9, 1998.
- [merlet98-5] Merlet J-P. Designing a parallel structure for a milling machine. In *Rencontre Franco-Israelienne sur la Robotique*, Besancon, May, 13-14, 1998.
- [merlet98-6] Merlet J-P. The importance of optimal design for parallel structures. In *First European-American Forum on Parallel Kinematic Machines*, Milan, August 31- September 1, 1998.
- [merlet98-7] Merlet J-P. Efficient design of parallel robots. In *New machine concepts for handling and manufacturing devices on the basis of parallel structures*, pages 1–13, Braunschweig, November, 10-11, 1998.
- [merlet99] Merlet J-P. Finding the extrema of the leg lengths of a Gough-type parallel robot when the platform is moving in a given 6D workspace. In *10th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 86–91, Oulu, June, 20-24, 1999.
- [merlet99-2] Merlet J-P. Determination of 6D workspaces of Gough-type parallel manipulator and comparison between different geometries. *Int. J. of Robotics Research*, 18(9):902–916, October 1999.
- [merlet99-3] Merlet J-P. Forward kinematics of parallel robots. In *IMACS Conf. on Applications of Computer Algebra*, El Escorial, June, 24-27, 1999.

- [merlet99-4] Merlet J-P. Parallel robot: open problems. In *9th Int. Symp. of Robotics Research*, Snowbird, October, 9-12, 1999.
- [merlet2000] Merlet J-P., Perng M-W., and Daney D. Optimal trajectory planning of a 5-axis machine tool based on a 6-axis parallel manipulator. In *ARK*, pages 315–322, Piran, June, 25-29, 2000.
- [merlet2000-1] Merlet J-P. and Dahan M. Un micro-robot parallèle pour l’inspection industrielle et l’endoscopie médicale. In *Troisième Journées du Pôle Micro-robotique*, Cachan, June, 27-28, 2000.
- [merlet2000-2] Merlet J-P. A formal-numerical approach to determine the accuracy of a parallel robot in a 6D workspace. In *13th RoManSy*, pages 51–58, Zakopane, July, 3-6, 2000.
- [merlet2000-3] Merlet J-P. On the separability of the solutions of the direct kinematics of a special class of planar 3-RPR parallel manipulator. In *26th ASME Biennial Mechanisms and Robotics Conference*, Baltimore, September, 10-13, 2000.
- [merlet2000-4] Merlet J-P. An efficient trajectory verifier for motion planning of parallel machine. In *Parallel Kinematic Machines Int. Conf.*, Ann Arbor, September, 14-15, 2000.
- [merlet2000-5] Merlet J-P. *Parallel robots*. Kluwer, Dordrecht, 2000. **Keywords:** state of the art.
- [merlet2005-5] Merlet J-P. *Parallel robots, 2nd Edition*. Springer, Heidelberg, 2005. **Keywords:** state of the art.
- [merlet2001] Merlet J-P. and Daney D. A formal-numerical approach to determine the presence of singularity within the workspace of a parallel robot. In F.C. Park C.C. Iurascu, editor, *Computational Kinematics*, pages 167–176. EJCK, Seoul, May, 20-22, 2001. **Keywords:** singularity.
- [merlet2001-1] Merlet J-P. An improved design algorithm based on interval analysis for parallel manipulator with specified workspace. In *IEEE Int. Conf. on Robotics and Automation*, pages 1289–1294, Seoul, May, 23-25, 2001.
- [merlet2001-2] Merlet J-P. Perspectives à court et moyen terme pour la robotique. In *Rencontre internationale de prospective du Sénat*, Paris, June, 27, 2001.
- [merlet2001-3] Merlet J-P. and Dahan M. Le micro-robot parallèle MIPS. In *Quatrième Journées du Pôle Micro-robotique*, Lyon, July, 4-5, 2001.
- [merlet2001-4] Merlet J-P. System-solving and parallel robots. In *Workshop on Robot Mechanics*, Paris, July, 12-13, 2001.
- [merlet2001-5] Merlet J-P. Micro parallel robot MIPS for medical applications. In *IEEE Int. Conf. on Emerging Technologies and Factory Automation*, Antibes, October, 15-18, 2001.
- [merlet2001-6] Merlet J-P. A generic trajectory verifier for the motion planning of parallel robots. *ASME J. of Mechanical Design*, 123(4):510–515, December 2001.
- [merlet2002] Merlet J-P. The need for a systematic methodology for the evaluation and optimal design of parallel manipulators. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 49–62, Chemnitz, April, 23-25, 2002.
- [merlet2002-1] Merlet J-P. A general methodology for certified evaluation of the performances of parallel robots. In *1st Int. Colloquium, Collaborative Research Centre 562*, pages 97–106, Braunschweig, May, 29-30, 2002.
- [merlet2002-2] Merlet J-P. Optimal design for the micro robot MIPS. In *IEEE Int. Conf. on Robotics and Automation*, Washington, May, 11-15, 2002.
- [merlet2002-3] Merlet J-P. Still a long way to go on the road for parallel mechanisms. In *ASME 27th Biennial Mechanisms and Robotics Conf.*, Montréal, September 29- October 2, 2002.
- [merlet2002-4] Merlet J-P. An initiative for the kinematic study of parallel manipulators. In *Workshop on Fundamental Issues and Future Research Directions for Parallel Mechanisms and Manipulators*, pages 2–9, Québec, October, 3-4, 2002.
- [merlet2002-5] Merlet J-P. Micro-robot parallèle pour la chirurgie minimalement invasive. In *MS4CMS’02*, Rocquencourt, November, 12-15, 2002.

- [merlet2003] Merlet J-P. Determination of the optimal geometry of modular parallel robots. In *IEEE Int. Conf. on Robotics and Automation*, Taipei, September, 14-19, 2003.
- [merlet2004] Merlet J-P. Solving the forward kinematics of a Gough-type parallel manipulator with interval analysis. *Int. J. of Robotics Research*, 23(3):221–236, 2004.
- [merlet2004-1] Merlet J-P. Getting exact information from the inverse jacobian matrix of parallel and serial robots. In *11th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 1951–1955, Tianjin, April, 1-4, 2004.
- [merlet2004-2] Merlet J-P. Guaranteed in-the-workspace improved trajectory/surface/volume verification for parallel robots. In *IEEE Int. Conf. on Robotics and Automation*, New Orleans, April, 28-30, 2004.
- [merlet2004-3] Merlet J-P. Analysis of the influence of wire interference on the workspace of wire robots. In *ARK*, pages 211–218, Sestri-Levante, June 28- July 1, 2004.
- [merlet2005] Merlet J-P. and Daney D. Dimensional synthesis of parallel robots with a guaranteed given accuracy over a specific workspace. In *IEEE Int. Conf. on Robotics and Automation*, Barcelona, April, 19-22, 2005.
- [merlet2005-1] Merlet J-P. and Daney D. Kinematics and synthesis of cams-coupled parallel robots. In *Computational Kinematics*, Cassino, May, 4-6, 2005.
- [merlet2005-2] Merlet J-P. The necessity of optimal design for parallel machines and a possible certified methodology. In *2nd Int. Colloquium, Collaborative Research Centre 562*, pages 7–20, Braunschweig, May, 10-11, 2005.
- [merlet2005-3] Merlet J-P. Optimal design of robots. In *Robotics: Science and Systems*, Boston, June, 8-11, 2005.
- [merlet2005-4] Merlet J-P. Jacobian, manipulability, condition number and accuracy of parallel robots. In *ISRR*, San Francisco, October, 12-15, 2005.
- [merlet2006] Merlet J-P. Jacobian, manipulability, condition number, and accuracy of parallel robots. *ASME J. of Mechanical Design*, 128(1):199–206, January 2006.
- [merlet2006-1] Merlet J-P. Computing the worst case accuracy of a PKM over a workspace or a trajectory. In *5th Chemnitzer Parallelkinematik Seminar*, pages 83–96, Chemnitz, April, 25-26, 2006.
- [merlet2006-2] Merlet J-P. and Daney D. Legs interference checking of parallel robots over a given workspace or trajectory. In *IEEE Int. Conf. on Robotics and Automation*, pages 757–762, Orlando, May, 16-18, 2006.
- [merlet2006-3] Merlet J-P. and Donelan P. On the regularity of the inverse jacobian of parallel robot. In *ARK*, pages 41–48, Ljubljana, June, 26-29, 2006.
- [merlet2007] Merlet J-P. and Daney D. A new design for wire-driven parallel robot. In *2nd Int. Congress, Design and Modelling of mechanical systems*, Monastir, March, 19-21, 2007.
- [merlet2007-2] Merlet J-P. A local motion planner for closed-loop robots. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 3088–3093, San Diego, September, 22-26, 2007.
- [merlet2007-1] Merlet J-P. A formal-numerical approach for robust in-workspace singularity detection. *IEEE Trans. on Robotics*, 23(3):393–402, June 2007.
- [merlet2008] Merlet J-P. Kinematics of the wire-driven parallel robot MARIONET using linear actuators. In *IEEE Int. Conf. on Robotics and Automation*, Pasadena, May, 19-23, 2008.
- [merlet2008-2] Merlet J-P. and Gosselin C. *Handbook of Robotics*, chapter Parallel Mechanisms and Robots, pages 269–285. Springer, Heidelberg, 2008. **Keywords:** state of the art.
- [merlet2008-3] Merlet J-P. and Daney D. *Appropriate Design of Parallel Manipulators*, chapter 1, pages 1–25. Springer, 2008. **Keywords:** state of the art.
- [merlet2008-4] Merlet J-P. Analysis of wire elasticity for wire-driven parallel robots. In *2nd European Conf. on Mechanism Science (Eucomes)*, pages 471–478, Cassino, September, 17-20, 2008.
- [merlet2009] Merlet J-P. Kinematic analysis of a spatial four-wire driven parallel crane without constraining mechanism. In *Computational Kinematics*, pages 1–8, Duisburg, May, 6-8, 2009.

- [merlet2010] Merlet J-P. and Daney D. A portable, modular parallel wire crane for rescue operations. In *IEEE Int. Conf. on Robotics and Automation*, pages 2834–2839, Anchorage, May, 3-8, 2010.
- [merlet2010-1] Merlet J-P. MARIONET, a family of modular wire-driven parallel robots. In *ARK*, pages 53–62, Piran, June 28- July 1, 2010.
- [merlet2011] Merlet J-P. and others . Siropa: singularités des robots parallèles. In *Colloque ANR*, Paris, January, 11-12, 2011.
- [merlet2012] Merlet J-P. The kinematics of the redundant N-1 wire driven parallel robot. In *IEEE Int. Conf. on Robotics and Automation*, pages 2313–2318, Saint Paul, May, 14-18, 2012.
- [merlet2012-1] Merlet J-P. On the accuracy of N-1 wire-driven parallel robots. In *RoManSy*, pages 1–10, Paris, June, 12-15, 2012.
- [merlet2012-2] Merlet J-P. Wire-driven parallel robots: open issues. In *RoManSy*, Paris, June, 12-15, 2012.
- [merlet2012-3] Merlet J-P. Managing the redundancy of N-1 wire-driven parallel robots. In *ARK*, pages 405–412, Innsbruck, June, 25-28, 2012.
- [merlet2012-4] Merlet J-P. Unsolved issues in kinematics and redundancy of wire-driven parallel robots. In *1st Int. Conf. on cable-driven parallel robots (CableCon)*, Stuttgart, September, 3-4, 2012.
- [merlet2012-5] Merlet J-P. Comparison of actuation schemes for wire-driven parallel robots. In *4th European Conf. on Mechanism Science (Eucomes)*, pages 245–254, Santander, September, 19-21, 2012.
- [merlet2013] Merlet J-P. Kinematic analysis of the 4-3-1 and 3-2-1 wire-driven parallel crane. In *IEEE Int. Conf. on Robotics and Automation*, pages 4620–4625, Karlsruhe, May, 6-10, 2013.
- [merlet2013-1] Merlet J-P. Further analysis of the 2-2 wire-driven parallel crane. In *Computational Kinematics*, Barcelona, May, 12-15, 2013.
- [merlet2013-2] Merlet J-P. Robots à câbles, tour d’horizon et défis. In *Journées Nationales de la Recherche en Robotique*, Annecy, October, 16-18, 2013.
- [merlet2014] Merlet J-P. Checking the cable configuration of cable-driven parallel robots on a trajectory. In *IEEE Int. Conf. on Robotics and Automation*, pages 1586–1591, Hong-Kong, May 31- June 7, 2014.
- [merlet2014-1] Merlet J-P. The influence of discrete-time control on the kinematico-static behavior of cable-driven parallel robot with elastic cables. In *ARK*, pages 113–121, Ljubljana, June 29- July 3, 2014.
- [merlet2014-2] Merlet J-P. The forward kinematics of cable-driven parallel robots with sagging cables. In *2nd Int. Conf. on cable-driven parallel robots (CableCon)*, pages 3–16, Duisburg, August, 24-27, 2014.
- [merlet2014-3] Merlet J-P. On the redundancy of cable-driven parallel robots. In *5th European Conf. on Mechanism Science (Eucomes)*, pages 31–39, Guimares, September, 16-19, 2014.
- [merlet2015] Merlet J-P. The kinematics of cable-driven parallel robots with sagging cables: preliminary results. In *IEEE Int. Conf. on Robotics and Automation*, pages 1593–1598, Seattle, May, 26-30, 2015.
- [merlet2015-1] Merlet J-P. On the inverse kinematics of cable-driven parallel robots with up to 6 sagging cables. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 4536–4361, Hamburg, Germany, September 28- October 2, 2015.
- [merlet2015-2] Merlet J-P. On the real-time calculation of the forward kinematics of suspended cable-driven parallel robots. In *14th IFToMM World Congress on the Theory of Machines and Mechanisms*, Taipei, October, 27-30, 2015.
- [merlet2015-3] Merlet J-P. On the robustness of cable configurations of suspended cable-driven parallel robots. In *14th IFToMM World Congress on the Theory of Machines and Mechanisms*, Taipei, October, 27-30, 2015.
- [merlet2016] Merlet J-P. On the workspace of suspended cable-driven parallel robots. In *IEEE Int. Conf. on Robotics and Automation*, Stockholm, May, 16-20, 2016.

- [merlet2016-1] Merlet J-P. Cable-driven parallel robots and their extension to other domains. In *IEEE Int. Conf. on Robotics and Automation*, Stockholm, May, 16-20, 2016.
- [merlet2016-2] Merlet J-P. A new generic approach for the inverse kinematics of cable-driven parallel robot with 6 deformable cables. In *ARK*, Grasse, June, 27-30, 2016.
- [merlet2016-3] Merlet J-P. Preliminaries of a new approach for the direct kinematics of suspended cable-driven parallel robot with deformable cables. In *Eucomes*, Nantes, September, 20-23, 2016.
- [merlet2016-4] Merlet J-P. A generic numerical continuation scheme for solving the direct kinematics of cable-driven parallel robot with deformable cables. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Daejeon, October, 9-14, 2016.
- [merlet2017] Merlet J-P. Direct kinematics of CDPR with extra cable orientation sensors: the 2 and 3 cables case with perfect measurement and sagging cables. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Vancouver, September, 24-28, 2017.
- [merlet2017-1] Merlet J-P. Direct kinematics of CDPR with extra cable orientation sensors: the 2 and 3 cables case with perfect measurement and ideal or elastic cables. In *3rd Int. Conf. on cable-driven parallel robots (CableCon)*, Québec, 2017.
- [merlet2017-2] Merlet J-P. Computing cross-sections of the workspace of cable-driven parallel robots with 6 sagging cables. In *Computational Kinematics*, Poitiers, 2017.
- [merlet2017-3] Merlet J-P. Simulation of discrete-time controlled cable-driven parallel robots on a trajectory. *IEEE Trans. on Robotics*, 33(3):675–688, June 2017.
- [merlet2018] Merlet J-P. An experimental investigation of extra measurements for solving the direct kinematics of cable-driven parallel robots. In *IEEE Int. Conf. on Robotics and Automation*, Brisbane, May, 21-25, 2018.
- [merlet2018-1] Merlet J-P. Computing cross-sections of the workspace of a cable-driven parallel robot with 6 sagging cables having limited lengths. In *ARK*, Bologna, July, 1-5, 2018.
- [merlet2018-3] Merlet J-P. Computing cross-sections of the workspace of suspended cable-driven parallel robot with sagging cables having tension limitations. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Madrid, October, 1-5, 2018.
- [merlet2018-4] Merlet J-P. Some properties of the Irvine cable model and their use for the kinematic analysis of cable-driven parallel robots. In *7th European Conf. on Mechanism Science (Eucomes)*, Aachen, September, 4-6, 2018.
- [merlet2019] Merlet J-P. Some properties of the Irvine cable model and their use for the kinematic analysis of cable-driven parallel robots. *Mechanism and Machine Theory*, 135:271–280, 2019.
- [merlet2019-1] Merlet J-P. Singularity of cable-driven parallel robot with sagging cables: preliminary investigation. In *IEEE Int. Conf. on Robotics and Automation*, Montréal, May, 20-24, 2019.
- [merlet2019-2] Merlet J-P. Improving cable length measurements for large CDPR using the Vernier principle. In *4th Int. Conf. on cable-driven parallel robots (CableCon)*, Cracow, June 30- July 4, 2019.
- [merlet2019-3] Merlet J-P. Influence of parameters uncertainties on the positioning of cable-driven parallel robots. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Macau, November, 4-8, 2019.
- [merlet2020] Merlet J-P. The forward kinematics of the 4-1 cable-driven parallel robot with non elastic sagging cables. In *ARK*, 2020.
- [merlet2020-1] Merlet J-P., Papegay Y., and Gasc A-V. The Prince’s tears, a large cable-driven parallel robot for an artistic exhibition. In *IEEE Int. Conf. on Robotics and Automation*, Paris, May 31- August 31, 2020.
- [merlet2021] Merlet J-P. Efficient kinematics of a 2-1 and 3-1 CDPR with non-elastic sagging cables. In *5th Int. Conf. on cable-driven parallel robots (CableCon)*, virtual, July, 7-9, 2021.
- [merlet2021-1] Merlet J-P. Maximal cable tensions of a N-1 cable-driven parallel robot with elastic or ideal cables. In *5th Int. Conf. on cable-driven parallel robots (CableCon)*, virtual, July, 7-9, 2021.

- [merlet2022] Merlet J-P. and Tissot R. A panorama of methods for dealing with sagging cables in cable-driven parallel robots. In *ARK*, Bilbao, June, 26-30, 2022.
- [merlet2023] Merlet J-P. Advances in the use of neural network for solving the direct kinematics of CDPR with sagging cable. In *6th Int. Conf. on cable-driven parallel robots (CableCon)*, Nantes, June, 25-28, 2023.
- [merlet2023-1] Merlet J-P. The new exhibition Blind Machines, a large 3d printing machine. In *IEEE Int. Conf. on Robotics and Automation*, London, May 29- June 2, 2023.
- [merlet2024] Merlet J-P. The inverse kinematics of cable-driven parallel robot with more than 6 sagging cables. part 1: from ideal to sagging cables. In *ARK*, Ljubljana, June 30- July 4, 2024.
- [mersi2018] Mersi R. and others . Design and control of a suspended cable-driven parallel robot with four cables. In *6th RSI International Conference on Robotics and Mechatronics (IcRoM)*, Teheran, October, 23-25, 2018.
- [metillon2022] Métillon M. and others . Stiffness and transparency of a collaborative cable-driven parallel robot. In *ARK*, Bilbao, June, 26-30, 2022.
- [mianowski90] Mianowski K. and Nazarczuk K. Parallel drive of manipulator arm. In *8th RoManSy*, pages 140–147, Cracovie, July, 2-6, 1990.
- [mianowski98] Mianowski K. Dextrous fully parallel manipulator with six degrees of freedom. In *12th RoManSy*, pages 253–260, Paris, July, 6-9, 1998.
- [mianowski2007] Mianowski K. Singularity analysis of parallel manipulator POLMAN 3x2 with six degrees of freedom. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [michael2009] Michael N., Fink J., and Kumar V. Cooperative manipulation and transportation with aerial robots. In *Robotics: Science and Systems*, Seattle, June 2009.
- [michelin2014] Michelin M. and others . Simulation and control with XDE and Matlab/Simulink of a cable-driven parallel robot (CoGiRo). In *2nd Int. Conf. on cable-driven parallel robots (CableCon)*, pages 71–86, Duisburg, August, 24-27, 2014.
- [mick98] Mick S. and Röschel O. Geometry & architecturally shaky platform. In *ARK*, pages 455–464, Strobl, June 29- July 4, 1998.
- [miermeister2010] Miermeister P. and Pott A. Modeling and real-time dynamic simulation of the cable-driven parallel robot IPAnema. In *3rd European Conf. on Mechanism Science (Eucomes)*, pages 353–360, Cluj-Napoca, September, 14-17, 2010.
- [miermeister2012] Miermeister P. and Pott A. Auto calibration method for cable-driven parallel robot using force sensors. In *ARK*, pages 269–276, Innsbruck, June, 25-28, 2012.
- [miermeister2012-1] Miermeister P., Pott A., and Verl A. Auto-calibration method for overconstrained cable-driven parallel robots. In *ROBOTIK 2012*, 2012.
- [miermeister2012-2] Miermeister P., Kraus W., and Pott A. Differential kinematics for calibration, system investigation, and force based forward kinematics of cable-driven parallel robots. In *1st Int. Conf. on cable-driven parallel robots (CableCon)*, Stuttgart, September, 3-4, 2012.
- [miermeister2014] Miermeister P. and others . An elastic cable model for cable-driven parallel robots including hysteresis effect. In *2nd Int. Conf. on cable-driven parallel robots (CableCon)*, pages 17–28, Duisburg, August, 24-27, 2014.
- [miermeister2016] Miermeister P. and others . The CableRobot simulator large scale motion platform based on cable robot technology. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Daejeon, October, 9-14, 2016.
- [mikelsons2008] Mikelsons L. and others . A real-time capable force calculation algorithm for redundant tendon-based parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 3869–3874, Pasadena, May, 19-23, 2008.

- [miletovic2017] Miletovic I. and others . Improved Stewart platform state estimation using inertial and actuator position measurements. *Control Eng. Practice*, 62:102–115, 2017.
- [milica2018] Milica L., Năstase A., , and Andrei G. A new insight into the geometric models and workspace volume of the 6RSS manipulator by disjunction of the translational and orientation subspaces. *Mechanism and Machine Theory*, 121:804–828, 2018.
- [milica2018-1] Milica L., Năstase A., , and Andrei G. Optimal path planning for a new type of 6RSS parallel robot based on virtual displacements expressed through Hermite polynomials. *Mechanism and Machine Theory*, 126:14–31, 2018.
- [milica2019] Milica L., Năstase A., , and Andrei G. Survey on the kinematics of a 6RSS parallel robot based on manipulability indices. *IOP Conference Series: Materials Science and Engineering*, 564(1), 2019.
- [miller92] Miller K. and Clavel R. The Lagrange-based model of Delta-4 robot dynamics. *Robotersysteme*, 8(1):49–54, 1992.
- [miller93] Miller K. The proposal of a new model of direct drive robot DELTA-4 dynamics. In *ICAR*, pages 411–416, Tokyo, November, 1-2, 1993.
- [miller95] Miller K. Experimental verification of modeling of Delta robot dynamics by direct application of Hamilton’s principle. In *IEEE Int. Conf. on Robotics and Automation*, pages 532–537, Nagoya, May, 25-27, 1995.
- [miller95-1] Miller K. Model-based control of DELTA direct drive parallel robot; trajectory tracking experiments. In *26th Int. Symp. on Industrial Robots (ISIR)*, pages 491–496, Singapur, October, 4-6, 1995.
- [miller95-2] Miller K. On accuracy and computational efficiency of DELTA direct drive robot dynamics model. In *Int. Symp. on Microsystems, Intelligent materials and Robots*, pages 568–571, Sendai, September, 27-29, 1995.
- [miller95-3] Miller K. Modeling of dynamics and model-based control of DELTA direct-drive parallel robot. *J. of Robotics and Mechatronics*, 17(4):344–352, 1995.
- [miller2000] Miller K. Mechanics of the new UWA robot. In *13th RoManSy*, pages 67–74, Zakopane, July, 3-6, 2000.
- [miller2001] Miller K. Design and applications of parallel robots. In *ISRR*, pages 161–173, Lorne, November, 9-12, 2001.
- [miller2002] Miller K. Maximization of workspace volume of 3-DOF spatial parallel manipulators. *ASME J. of Mechanical Design*, 124(2):347–350, June 2002.
- [miller2004] Miller K. Optimal design and modeling of spatial parallel manipulators. *Int. J. of Robotics Research*, 23(2):127–140, February 2004.
- [millies90] Millies P. Kinematics of parallel robot arms. Master’s thesis, Université de Californie, Santa Barbara, March 1990. **Keywords:** mechanical architecture.
- [millman91] Millman P.A. and Colgate J.E. Design of a four d.o.f. force reflecting manipulum with a specified force/torque workspace. In *IEEE Int. Conf. on Robotics and Automation*, pages 1488–1493, Sacramento, April, 11-14, 1991.
- [mimura95] Mimura N. and Y. Funahashi. A new analytical system applying 6 dof parallel link manipulator for evaluating motion sensation. In *IEEE Int. Conf. on Robotics and Automation*, pages 227–233, Nagoya, May, 25-27, 1995.
- [ming94] Ming A., Kajitani M., and Higuchi T. Study on wire parallel mechanism. In *2nd Japan-France Congress on Mechatronics*, pages 667–670, Takamatsu, November, 1-3, 1994.
- [ming94-1] Ming A. and Higuchi T. Study on multiple degree of freedom positioning mechanisms using wires, Part 1, Concept, Design and Control. *Int. J. Japan Soc. Prec. Eng.*, 28(2):131–138, June 1994.
- [ming94-2] Ming A. and Higuchi T. Study on multiple degree of freedom positioning mechanisms using wires, Part 2, Development of a planar completely restrained positioning mechanism. *Int. J. Japan Soc. Prec. Eng.*, 28(3):235–242, September 1994.



- [minsky72] Minsky M. Manipulator design vignettes. Research Report 267, MIT AI Lab., 1972.
- [mitova91] Mitova T. and Vatkitchiev A. Analysis of a closed space mechanism with three degree of mobility. In *XI COBEM*, Rio de Janeiro, 1991.
- [mitrouchev2008] Mitrouchev P. Formulation for actuators' number enumeration for main planar structures in robotics. *European Journal of Mechanics A/Solids*, 27:622–646, 2008.
- [miura84] Miura K. and Furuya H. Variable geometry truss and its application to deployable truss and space crane arms. In *35th Congress of the Int. Astronautical Federation*, pages 1–9, Lausanne, October, 7-13, 1984.
- [miyasaka2015] Miyasaka M. and others . Measurement of the cable-pulley coulomb and viscous friction for a cable-driven surgical robotic system. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Hamburg, Germany, September 28- October 2, 2015.
- [miyasaka2016] Miyasaka M. and others . Hysteresis model of longitudinally loaded cable for cable driven robots and identification of the parameters. In *IEEE Int. Conf. on Robotics and Automation*, Stockholm, May, 16-20, 2016.
- [miyoshi2011] Miyoshi T., Suzuki K., and Terashima K. Development of five-degree-of-freedom wire suspension power-assisted system using linear cylinders. In *IEEE Int. Conf. on Robotics and Automation*, Shanghai, May, 9-13, 2011.
- [mkrtychev2019] Mkrtychev O.V. and Kartygin A.V. Computer simulation of kinetics of parallel mechanisms. *IOP Conference Series: Materials Science and Engineering*, 680, 2019.
- [mo2017] Mo J. and others . Dynamic performance analysis of the X4 high-speed pick-and-place parallel robot. *Robotics and Computer-Integrated Manufacturing*, 46:48–57, 2017.
- [mobedi2018] Mobedi I., E. and Görgülü and Can Dede M.I. Experimental evaluation of actuation and sensing capabilities of a haptic device. In *EUCOMES*, pages 137–144, Aachen, September, 4-6, 2018.
- [modak2024] Modak S. and Krishna R.K. Kinematics and singularity analysis of a novel hybrid industrial manipulator. *Robotica*, 42:579–610, 2024.
- [moghadam2015] Moghadam A.A.A. and others . Development of a novel soft parallel robot equipped with polymeric artificial muscles. *Smart Mater. Struct.*, 24(4), 2015.
- [mohamed83] Mohamed M.G., Sanger J., and Duffy J. Instantaneous kinematics of fully-parallel devices. In *6th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 77–80, New-Delhi, December, 15-20, 1983.
- [mohamed85] Mohamed M.G. and Duffy J. A direct determination of the instantaneous kinematics of fully parallel robot manipulators. *J. of Mechanisms, Transmissions and Automation in Design*, 107(2):226–229, June 1985.
- [mohanta2018"] Mohanta J.K., Singh Y., and Mohan S. Kinematic and dynamic performance investigations of asymmetric (U-shape fixed base) planar parallel manipulators. *Robotica*, 36:1111–1143, 2018.
- [molinari2000] Molinari-Tosatti L. and others . An integrated tool for parallel kinematic machine design. In *2nd Chemnitzer Parallelkinematik Seminar*, pages 57–71, Chemnitz, April, 12-13, 2000.
- [molinari2001] Molinari-Tosatti L. and Fassi I. Parallel kinematic machines for an application in shoes manufacturing: from the conceptual design to the first experimental campaign. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Maui, Hawaii, October 29- November 3, 2001.
- [molinari2003] Molinari-Tosatti L., Fassi I., and Lagagni G. Kineto-static optimisation of PKMs. *Annals of the CIRP*, 52(1):337–341, 2003.
- [monckton2002] Monckton S.P. and Chrystall K. Design and development of an automated footwear testing system. In *IEEE Int. Conf. on Robotics and Automation*, pages 3684–3689, Washington, May, 11-15, 2002.
- [monsarrat2001] Monsarrat B. and Gosselin C.M. Singularity analysis of a three-leg six-degree-of-freedom parallel platform mechanism based on Grassman line geometry. *Int. J. of Robotics Research*, 20(4):312–328, April 2001.

- [monsarrat2002] Monsarrat B. and Gosselin C.M. Jacobian matrix of general parallel and hybrid mechanisms with rigid and flexible link: a software oriented approach. In *ASME Design Engineering Technical Conference*, Montréal, September 29- October 2, 2002.
- [monsarrat2003] Monsarrat B. and Gosselin C.M. Workspace analysis and optimal design of a 3-leg 6-DOF parallel platform mechanism. *IEEE Trans. on Robotics and Automation*, 19(6):954–966, December 2003.
- [moon2002] Moon Y-M. and Kota S. Design of compliant parallel kinematic machine. In *ASME 27th Biennial Mechanisms and Robotics Conf.*, pages 1–7, Montréal, September 29- October 2, 2002.
- [moosavian2009] Moosavian S.A.A., Pourreza A., and Alipour K. Kinematics and dynamics of a hybrid serial-parallel mobile robot. In *IEEE Int. Conf. on Robotics and Automation*, pages 1358–1363, Kobe, May, 14-16, 2009.
- [moosavian2010] Moosavian S.A.A. and Pourreza A. Heavy object manipulation by a hybrid serial-parallel mobile robot. *Int. J. of Robotics and Automation*, 25(2):109–120, 2010.
- [moosavian2016] Moosavian A. and Xi F. Modular design of parallel robots with static redundancy. *Mechanism and Machine Theory*, 96:26–37, 2016.
- [moosavian2016-1] Moosavian A. and Xi F. Holonomic under-actuation of parallel robots with topological reconfiguration. *Mechanism and Machine Theory*, 96:290–307, 2016.
- [moradi2013-phd] Moradi A. *Stiffness analysis of cable-driven parallel robot*. Ph.D. Thesis, Queen’s University, Kingston, April 2013. **Keywords:** wire robot, stiffness, mechanical architecture, trajectory planning, safety.
- [moreira2015] Moreilra E. and others . Cable robot for non-standard architecture and construction: A dynamic positioning system. In *IEEE International Conference on Industrial Technology (ICIT)*, 2015.
- [morgan2002] Morgan J., Miller J., and Wynn D.A. Simulation of airborne satellite communications using a platform motion emulator. In *IEE Conf. Simulation and Modelling of satellite systems*, pages 7/1–4, London, April, 23, 2002.
- [mori2002] O. Mori, Yamawaki T., and Omata T. Control of self-reconfigurable parallel robot by coupling open kinematic chains with unactuated joints. In *41st SICI Ann. Conf.*, pages 3002–3005, Osaka, August, 5-7, 2002.
- [morizono97] Morizono T., Kurahashi K., and Kawamura S. Realization of a virtual sports training system with parallel wire mechanism. In *IEEE Int. Conf. on Robotics and Automation*, pages 3025–3030, Albuquerque, April, 21-28, 1997.
- [morizono98] Morizono T., Kurahashi K., and Kawamura S. Analysis and control of a force display system driven by parallel wire mechanism. *Robotica*, 16(5):551–563, September 1998.
- [morizono2003] Morizono T., Yamada Y., and Umetani Y. Design of a new exoskeletal mechanism for a shoulder joint of a wearable robots: the wearable HEXA mechanism. In *IEEE Int. Conf. on Robotics and Automation*, pages 2323–2329, Taipei, September, 14-19, 2003.
- [morlock2015] Morlock M.B., Burkhardt M., and Seifried R. Friction compensation, gain scheduling and curvature control for a flexible parallel kinematics robot. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 2354–2359, Hamburg, Germany, September 28- October 2, 2015.
- [morlock2021] Morlock M.B. and others . Real-time trajectory tracking control of a parallel robot with flexible links. *Mechanism and Machine Theory*, 158, 2021.
- [moroz2010] Moroz G. and others . Cusp points in the parameter space of  $R\underline{P}R - 2\underline{P}R\underline{R}$  parallel manipulators. In *3rd European Conf. on Mechanism Science (Eucomes)*, Cluj-Napoca, September, 14-17, 2010.
- [moroz2010-1] Moroz G., Rouiller F., Chablat D., and Wenger P. On the determination of cusp points of  $3-R\underline{P}R$  parallel manipulators. *Mechanism and Machine Theory*, 45(11):1555–1567, November 2010.
- [morozovsky2013] Morozovsky N. and Bewley T. Skysweeper: A low dof, dynamic high wire robot. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Tokyo, November, 3-7, 2013.

- [morris2001] Morris D.M. Force guided assemblies using a novel parallel manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 325–330, Seoul, May, 23-25, 2001.
- [mostashiri2020] Mostashiri N. and others . Optimizing the torque distribution of a redundantly actuated parallel robot to study the temporomandibular reaction forces during food chewing. *J. of Mechanisms and Robotics*, 12, October 2020.
- [motahari2013] Motahari A. and others . Discrete kinematic synthesis of discretely actuated hyper-redundant manipulators. *Robotica*, 31:1073–1084, 2013.
- [motevalli2010] Motevalli B., Zohoor H., and Sohrabpour S. Structural synthesis of 5 dofs 3T2R parallel manipulators with prismatic actuators on the base. *Robotics and Autonomous Systems*, 58(3):307–321, March 2010.
- [mottola2017] Mottola G., Gosselin C., and Carricato M. Dynamically-feasible elliptical trajectories for fully constrained 3-dof cable-suspended parallel robots. In *3rd Int. Conf. on cable-driven parallel robots (CableCon)*, Québec, 2017.
- [mottola2018] Mottola G., Gosselin C., and Carricato M. Dynamically feasible periodic trajectories for generic spatial three-degree-of-freedom cable-suspended parallel robots. *J. of Mechanisms and Robotics*, 10(3), 2018.
- [mottola2019] Mottola G., Gosselin C., and Carricato M. Dynamically feasible motions of a class of purely-translational cable-suspended parallel robots. *Mechanism and Machine Theory*, 132:193 – 206, 2019.
- [mou2004] Mou J-I. and Chin C-T. Micro parallel kinematic mechanism design and fabrication, September, 24, 2004. WIPO Patent n° WO 2004/081991, A2. **Keywords:** planar robot,micro robot,patent.
- [mouly92] Mouly N. and Merlet J-P. Singular configurations and direct kinematics of a new parallel manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 338–343, Nice, May, 12-14, 1992.
- [mouly93] Mouly N. *Développement d’une famille de robots parallèles à motorisation électrique*. Ph.D. Thesis, École des Mines de Paris, Sophia, May, 11, 1993. **Keywords:** kinematics,workspace,mechanical architecture,6 dof robot,applications,actuators.
- [mourrain93] Mourrain B. The 40 generic positions of a parallel robot. In Bronstein M., editor, *ISSAC’93*, ACM press, pages 173–182, Kiev (Ukraine), July 1993.
- [mourrain94] Mourrain B. Enumeration problems in Geometry, Robotics and Vision. In *MEGA*, Santander, April, 5-9, 1994.
- [mousavi2014] Mousavi M.A., Masouleh M.T., and Karimi A. On the maximal singularity-free ellipse of planar 3-RPR parallel mechanisms via convex optimization. *Robotics and Computer-Integrated Manufacturing*, 30:218–227, 2014.
- [mousavi2016] Mousavi M. and others . Sensory feedback performance improvement on RoboCab: an experimental approach to wire-driven parallel manipulator. In *4th International Conference on Robotics and Mechatronics*, Teheran, October, 26-28, 2016.
- [mousavi2022] Mousavi M. and others . Rapid and safe wire tension distribution scheme for redundant cable-driven parallel manipulators. *Robotica*, 40(7):2295–2408, July 2022.
- [mu2002] Mu Z. and Kazerooni K. A real parameter continuation method for complete solution of forward position analysis of the general Stewart platform. *ASME J. of Mechanical Design*, 124(2):236–244, June 2002.
- [mu2019] Mu Z. and others . Dynamic feedforward control of spatial cable-driven hyper-redundant manipulators for on-orbit servicing. *Robotica*, 37:18–38, 2019.
- [muglitz95] Muglitz J. and Kunad G. Multilink, trunklike spatial mechanisms. In *9th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 13–17, Milan, August 30- September 2, 1995.
- [mukherjee2001] Mukherjee S. and Murlidhar S. Massively parallel binary manipulators. *ASME J. of Mechanical Design*, 123(1):68–73, March 2001.
- [muller-k2014] Müller K., Reichert C., and Bruckmann T. Analysis of a real-time capable force computation method. In *2nd Int. Conf. on cable-driven parallel robots (CableCon)*, Duisburg, August, 24-27, 2014.

- [muller-k2014-1] Müller K., Reichert C., and Bruckmann T. Analysis of geometrical force calculation algorithms for cable-driven parallel robots with a threefold redundancy. In *ARK*, Ljubljana, June 29- July 3, 2014.
- [muller2001] Müller A. and Maisser P. Kinematic and dynamic properties of parallel manipulators. *Multibody System Dynamics*, 5:223–249, 2001.
- [muller2002] Müller A. Higher order local analysis of singularity of parallel mechanisms. In *ASME Design Engineering Technical Conference*, Montréal, September 29- October 2, 2002.
- [muller2003] Müller A. Manipulability and static stability of parallel manipulators. *Multibody System Dynamics*, 9:1–23, 2003.
- [muller2005] Müller A. Internal preload control of redundantly actuated parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 960–965, Barcelona, April, 19-22, 2005.
- [muller2005-1] Müller A. Internal preload control of redundantly actuated parallel manipulators-Its application to backlash avoiding control. *IEEE Trans. on Robotics*, 21(4):668–677, August 2005.
- [muller2006] Müller A. Stiffness control of redundantly actuated parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 1153–1158, Orlando, May, 16-18, 2006.
- [muller2007] Müller A. and Maisser P. Generation and application of prestress in redundantly full-actuated parallel manipulators. *Multibody System Dynamics*, 18:259–275, 2007.
- [muller2008] Müller A. *Parallel manipulators, Towards new applications*, chapter Redundant actuation of parallel manipulators, pages 87–108. ITECH, April 2008. **Keywords:** redundant robot,dynamics,control,state of the art.
- [muller2009] Müller A. Effects of geometric imperfections to the control of redundantly actuated parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 1782–1787, Kobe, May, 14-16, 2009.
- [muller2010] Müller A. Consequences of geometric imperfections for the control of redundantly actuated parallel manipulators. *IEEE Trans. on Robotics*, 26(1), February 2010.
- [muller2011] Müller A. and Hufnagel T. A projection method for the elimination of contradicting control forces in redundantly actuated PKM. In *IEEE Int. Conf. on Robotics and Automation*, Shangai, May, 9-13, 2011.
- [muller2012] Müller A. and Ruggiu M. Self calibration of redundantly actuated PKM based on motion reversal point. In *ARK*, pages 75–82, Innsbruck, June, 25-28, 2012.
- [muller2012-1] Müller A. and Hufnagel T. Model-based control of redundantly actuated parallel manipulators in redundant coordinates. *Robotics and Autonomous Systems*, 60:563–571, 2012.
- [muller2013] Müller A. On the terminology and geometric aspects of redundant parallel manipulators. *Robotica*, 31(1):137–147, January 2013.
- [muller2018] Müller A. Kinematic topology and constraints of multi-loop linkages. *Robotica*, 36:1641–1663, 2018.
- [muller2022] Müller A. A constraint embedding approach for dynamics modeling of parallel kinematic manipulators with hybrid limbs. *Robotics and Autonomous Systems*, 155, 2022.
- [muralidharan2018] Muralidharan V. and others . A comparative study of the configuration-space and actuator-space formulations of the lagrangian dynamics of parallel manipulators and the effects of kinematic singularities on these. *Mechanism and Machine Theory*, 130:401–434, 2018.
- [muralidharan2020] Muralidharan V. and others . Methods for dimensional design of parallel manipulators for optimal dynamic performance over a given safe working zone. *Mechanism and Machine Theory*, 147, 2020.
- [muralidharan2022] Muralidharan V., Wenger P., and Chevallereau C. Kinematic and static analysis of a cable-driven 2-X tensegrity manipulator for two actuation strategies. In *ARK*, Bilbao, June, 26-30, 2022.
- [murareci97-phd] Murareci D. *Contribution à la modélisation géométrique et à l’étalonnage des robots séries et parallèles*. Ph.D. Thesis, Ecole Centrale, Nantes, March, 7, 1997. **Keywords:** calibration.

- [murphy2007] Murphy W.S. Determination of a position using approximate distances and trilateration. Master's thesis, Colorado School of Mines, Golden, July 2007. **Keywords:** forward kinematics.
- [murray-m2006] Murray M., Hovland G., and Brogardh T. Collision-free workspace design of the 5-axis Gantry-Tau parallel kinematic machine. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Beijing, October, 9-15, 2006.
- [murray96] Murray A.P., Pierrot F., Dauchez P., and McCarthy J.M. On the design of parallel manipulators for a prescribed workspace: a planar quaternion approach. In *ARK*, pages 349–357, Portoroz-Bernadin, June, 22-26, 1996.
- [murray97] Murray A.P., Pierrot F., Dauchez P., and McCarthy J.M. A planar quaternion approach to the kinematic synthesis of a parallel manipulator. *Robotica*, 15(4):361–365, July - August, 1997.
- [murray98] Murray A.P. and Pierrot F. N-position synthesis of parallel planar RPR platforms. In *ARK*, pages 69–78, Strobl, June 29- July 4, 1998.
- [murray99] Murray A.P. and McCarthy J.M. Burmester lines of spatial five position synthesis from the analysis of a 3-CPC platform. *ASME J. of Mechanical Design*, 121(1):45–49, March 1999.
- [murthy90-phd] Murthy V.S. *Kinematics of serial manipulators and their parallel duals*. Ph.D. Thesis, Ohio State University, 1990. **Keywords:** duality.
- [murthy92] Murthy V. and Waldron K.J. Position kinematics of the generalized lobster arm and its series-parallel dual. *ASME J. of Mechanical Design*, 114(3):406–413, September 1992.
- [mustafa2005] Mustafa S. K. and others. A biologically-inspired anthropocentric shoulder joint rehabilitator: Workspace analysis & optimization. In *International Conference on Mechatronics & Automation*, Niagara Falls, 2005.
- [mustafa2007] Mustafa S. K. and others. Self-identification of the joint centre of a cable-driven shoulder rehabilitator. In *IEEE Int. Conf. on Robotics and Automation*, Roma, April, 10-14, 2007.
- [mustafa2008] Mustafa S. K. and others. Kinematic calibration of a 7-dof self-calibrated modular cable-driven robotic arm. In *IEEE Int. Conf. on Robotics and Automation*, pages 1288–1293, Pasadena, May, 19-23, 2008.
- [nabat2005] Nabat V. and others. Par4: very high speed parallel robot for pick-and-place. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Edmonton, August, 2-6, 2005.
- [nabavi2020] Nabavi S.N. and others. Parametric design and multi-objective optimization of a general 6-PUS parallel manipulator. *Mechanism and Machine Theory*, 152, 2020.
- [nabipour2016] Nabipour M.S. and others. Visual servoing in a cable robot using Microsoft Kinect v2 sensor. In *4th International Conference on Robotics and Mechatronics*, Teheran, October, 26-28, 2016.
- [naccarato2003] Naccarato F. and Hughes P. Inverse kinematics of variable-geometry-truss manipulators, 2003. Communication personelle. **Keywords:** truss.
- [nag2017] Nag A., Mohan S., and Bandyopadhyay S. Forward kinematic analysis of the 3–*RPRS* parallel manipulator. *Mechanism and Machine Theory*, 116:262–273, 2017.
- [nag2018] Nag A. and Bandyopadhyay S. Analytical determination of a sphere inside the which the Stewart platform translates without suffering any leg interference. In *ARK*, pages 74–82, Bologna, July, 1-5, 2018.
- [nag2021] Nag A. and Bandyopadhyay S. Singularity-free spheres in the position and orientation workspaces of Stewart platform manipulators. *Mechanism and Machine Theory*, 155, 2021.
- [nag2021-1] Nag A., V S., and Bandyopadhyay S. A uniform geometric-algebraic framework for the forward kinematic analysis of 6-6 Stewart platform manipulators of various architectures and other related 6-6 spatial manipulators. *Mechanism and Machine Theory*, 155, 2021.
- [nagai2003] Nagai K. and others. Development of parallel manipulator "ninja" with ultra-high-acceleration. In *IEEE Int. Conf. on Robotics and Automation*, pages 3678–3685, Taipei, September, 14-19, 2003.

- [nagai2008] Nagai K. and Liu Z. A systematic approach to stiffness analysis of parallel mechanisms. In *IEEE Int. Conf. on Robotics and Automation*, pages 1543–1548, Pasadena, May, 19-23, 2008.
- [nagai2009] Nagai K. and Liu Z. Re-design of force redundant parallel mechanisms by introducing kinematical redundancy. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, St Louis, October, 11-15, 2009.
- [nagua2018] Nagua L. and others . Design and performance validation of a cable-driven soft robotic neck. In *Spanish Robotics Conference*, June, 14-15, 2018.
- [nahavandi2008] Nahavandi S. and others . Heavy tools manipulation by low powered direct-drive five-bar parallel robot. *Mechanism and Machine Theory*, 43(11):1450–1461, November 2008.
- [nahon91] Nahon M. and Angeles J. Real-time force optimization in parallel kinematics chains under inequality constraints. In *IEEE Int. Conf. on Robotics and Automation*, pages 2198–2203, Sacramento, April, 11-14, 1991.
- [nahvi94] Nahvi A., Hollerbach J.M., and Hayward V. Calibration of a parallel robot using multiple kinematics closed loops. In *IEEE Int. Conf. on Robotics and Automation*, pages 407–412, San Diego, May, 8-13, 1994.
- [nahvi96] Nahvi A. and Hollerbach J.M. The noise amplification index for optimal pose selection in robot calibration. In *IEEE Int. Conf. on Robotics and Automation*, pages 647–654, Minneapolis, April, 24-26, 1996.
- [nair92] Nair P. On the kinematics geometry of parallel robot manipulators. Master’s thesis, Université du Maryland, College Park, 1992. **Keywords:** forward kinematics.
- [nair94] Nair P. On the forward kinematics of parallel manipulators. *Int. J. of Robotics Research*, 13(2):171–188, April 1994.
- [najafi2016] Najafi F. and Bakhshizadeh M. Development a fuzzy pid controller for a parallel cable robot with flexible cables. In *4th International Conference on Robotics and Mechatronics*, Teheran, October, 26-28, 2016.
- [nakamura89] Nakamura Y. and Ghodoussi M. Dynamics computation of closed-link robot mechanisms with nonredundant and redundant actuators. *IEEE Trans. on Robotics and Automation*, 5(3):294–302, June 1989.
- [nakamura91] Nakamura Y., Kimura Y., and Arora G. Optimal use of non-linear electromagnetic force for micro motion wrist. In *IEEE Int. Conf. on Robotics and Automation*, pages 1040–1045, Sacramento, April, 11-14, 1991.
- [nakano2009] Nakano T. and others . A parallel robot to assist vitreoretinal surgery. *Int. J. of Computer Assisted Radiology and Surgery*, 4(6), November 2009.
- [nakashima92] Nakashima K. and others . Development of the parallel manipulator. In *IMACS/SICE Int. Symp. on Robotics, Mechatronics, and Manufacturing Systems*, pages 419–424, Kobe, September, 16-20, 1992.
- [nakashima94] Nakashima K. A six-axis motion base and a study of a parallel manipulator. *Advanced Robotics*, 8(6):609, December 1994.
- [nanua89] Nanua P. and Waldron K.J. Direct kinematic solution of a Stewart platform. In *IEEE Int. Conf. on Robotics and Automation*, pages 431–437, Scottsdale, May, 14-19, 1989.
- [nanua90] Nanua P. and Waldron K.J. Direct kinematic solution of a special parallel robot structure. In *8th RoManSy*, pages 134–142, Cracow, July, 2-5, 1990.
- [nanua91] Nanua P. and Waldron K.J. Direct kinematic solution of a Stewart platform. *IEEE Trans. on Robotics and Automation*, 6(4):438–444, August 1991.
- [narayanan2017] Narayanan T. and others . A cable driven parallel robot for coconut farm. In *Int. Conf. on Advances in Computing, Communications and Informatics (ICACCI)*, 2017.
- [nastase2007] Nastase A. The class of hybrid parallel mechanisms 3(JRS). In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [natal2012] Natal G.S., Chemori A., and Pierrot F. Dual space adaptive control of redundantly actuated parallel manipulators for extremely fast operations with changes. In *IEEE Int. Conf. on Robotics and Automation*, pages 253–259, Saint Paul, May, 14-18, 2012.

- [natal2016] Natal G.S., Chemori A., and Pierrot F. Nonlinear control of parallel manipulators for very high accelerations without velocity measurement: stability analysis and experiments on par2 parallel manipulator. *Robotica*, 34(1):43–70, January 2016.
- [navarro2010] Navarro J.S and others . Kinematics of a robotic 3UPS1S spherical wrist designed for laparoscopic applications. *Int. J. of Computer Assisted Radiology and Surgery*, 6, 2010.
- [nawratil2010] Nawratil G. Main theorem on Schönflies-singular planar Stewart Gough platforms. In *ARK*, pages 107–116, Piran, June 28- July 1, 2010.
- [nawratil2010-1] Nawratil G. Special cases of Schönflies-singular planar Stewart Gough platforms. In *3rd European Conf. on Mechanism Science (Eucomes)*, Cluj-Napoca, September, 14-17, 2010.
- [nawratil2006] Nawratil G. The control number as index for Stewart-Gough platforms. In *ARK*, pages 15–22, Ljubljana, June, 26-29, 2006.
- [nawratil2009] Nawratil G. A new approach to the classification of architecturally singular parallel manipulators. In *Computational Kinematics*, Duisburg, May, 6-8, 2009.
- [nawratil2009-1] Nawratil G. New performance indices for 6-dof UPS and 3-dof RPR parallel manipulators. *Mechanism and Machine Theory*, 44(1):208–221, January 2009.
- [nawratil2009-2] Nawratil G. All planar parallel manipulators with cylindrical singularity surface. *Mechanism and Machine Theory*, 44(12):2179–2186, December 2009.
- [nawratil2012] Nawratil G. Self-motions of planar projective Stewart Gough platforms. In *ARK*, pages 27–34, Innsbruck, June, 25-28, 2012.
- [nawratil2014] Nawratil G. Correcting Duporcq’s theorem. *Mechanism and Machine Theory*, 73(12):282–295, March 2014.
- [nawratil2017] Nawratil G. and Schicho J. Self-motions of pentapods with linear platform. *Robotica*, 35:832–860, 2017.
- [nayak2018] Nayak A., Caro S., and Wenger P. Comparison of 3-[PP]S parallel manipulators based on their singularity free orientation workspace, parasitic motions and complexity. *Mechanism and Machine Theory*, 129, 2018.
- [nayak2018-1] Nayak A. and others . Operation mode analysis of 3-RPS parallel manipulators based on their design parameters. *Computer Aided Geometric Design*, 63, 2018.
- [nayak2018-2] Nayak A., Caro S., and Wenger P. Comparison of 3-[PP]S parallel manipulators based on their singularity free orientation workspace, parasitic motions and complexity. *Mechanism and Machine Theory*, 129:293–315, 2018.
- [nayak2019] Nayak A., Caro S., and Wenger P. Kinematic analysis of the 3-RPS-3-SPR series-parallel manipulator. *Robotica*, 37(7), 2019.
- [nedic2014] Nedic N. and others . Optimal cascade hydraulic control for a parallel robot platform by PSO. *The International Journal of Advanced Manufacturing Technology*, 72:1085–1098, 2014.
- [nedic2015] Nedic N. and others . Optimal control of hydraulically driven parallel robot platform based on firefly algorithm. *Nonlinear Dynamics*, 82:1457–1473, 2015.
- [nelson2017] Nelson C.A. On improving stiffness of cable robots. In *3rd Int. Conf. on cable-driven parallel robots (CableCon)*, Québec, 2017.
- [nenchev96] Nenchev D.N. and Uchiyama M. Singularity-consistent path planning and control of parallel robot motion through instantaneous-self-motion type. In *IEEE Int. Conf. on Robotics and Automation*, pages 1864–1870, Minneapolis, April, 24-26, 1996.
- [nenchev97] Nenchev D.N., Bhattacharya S., and Uchiyama M. Dynamic analysis of parallel manipulator under the singularity-consistent parameterization. *Robotica*, 15(4):375–384, July - August , 1997.
- [nenchev98] Nenchev D.N. and Uchiyama M. Para-arm: a five-bar parallel manipulator with singularity-perturbed design. *Mechanism and Machine Theory*, 33(5):453–462, July 1998.

- [neugebauer97] Neugebauer R. and others . Hexapod werkzeug-machine für die hochgeschwindigkeit bearbeitung. *ZWF*, 92(9):447–449, 1997.
- [neugebauer98] Neugebauer R. and others . Experiences with a hexapod-based machine-tool. In *First European-American Forum on Parallel Kinematic Machines*, pages 313–326, Milan, August 31- September 1, 1998.
- [neugebauer2002] Neugebauer R. and others . Parallel kinematic structures in manufacturing. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 17–47, Chemnitz, April, 23-25, 2002.
- [neugebauer2002-1] Neugebauer R. and others . Hybrid struts with smart piezo actuators for high dynamic parallel kinematics. In *1st Int. Colloquium, Collaborative Research Centre 562*, pages 131–140, Braunschweig, May, 29-30, 2002.
- [neugebauer2002-2] Neugebauer R. and others . Intelligent strut. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 277–284, Chemnitz, April, 23-25, 2002.
- [neugebauer2002-3] Neugebauer R. and Weidemann F. Structure optimization of machine tools with parallel kinematics. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 105–118, Chemnitz, April, 23-25, 2002.
- [neugebauer2002-4] Neugebauer R. and others . Improvement of the calibration accuracy by a new measurement process. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 443–453, Chemnitz, April, 23-25, 2002.
- [neugebauer2002-5] Neugebauer R. and others . Application of the parallel kinematic machine principle in a new hydraulic powered, flexible bending machine for tubes and profiles. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 629–638, Chemnitz, April, 23-25, 2002.
- [neugebauer2002-6] Neugebauer R. and others . Interaction between machine-tool and process: modelling, simulation of milling operations on hexapod 6X Hexa. In *2nd NCG Application Conf. on Parallel Kinematics Machine*, pages 833–841, Chemnitz, April, 23-25, 2002.
- [neugebauer2005] Neugebauer R. and others . Parallel kinematics as a potential for boosting efficiency for handling equipment in forming machines. In *2nd Int. Colloquium, Collaborative Research Centre 562*, pages 269–284, Braunschweig, May, 10-11, 2005.
- [neugebauer2006] Neugebauer R. and others . A virtual reality-based engineering tool for fast configuration of machine-tool with parallel kinematic-vrax. In *5th Chemnitzer Parallelkinematik Seminar*, pages 39–62, Chemnitz, April, 25-26, 2006.
- [neugebauer2006-1] Neugebauer R. and others . The 3rd generation of an actuator-sensor unit for tripod structures. In *5th Chemnitzer Parallelkinematik Seminar*, pages 325–340, Chemnitz, April, 25-26, 2006.
- [neugebauer2006-2] Neugebauer R. and others . Method for the optimization of kinematic and dynamic properties of parallel kinematic machines. *Annals of the CIRP*, 55(1):403–406, 2006.
- [neumann-r2005] Neumann R. and others . Parallel robots with pneumatic drives. In *2nd Int. Colloquium, Collaborative Research Centre 562*, pages 171–184, Braunschweig, May, 10-11, 2005.
- [neumann88] Neumann K.E. Robot, March, 22, 1988. United States Patent n° 4,732,525, Neos Product HB Norrtalje Suède. **Keywords:** mechanical architecture, 4 dof robot, 3 dof robot, patent.
- [neville96] Neville A.B. and Sanderson A.C. Tetrobot family tree: modular synthesis of kinematic structures for parallel robotics. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 382–388, Osaka, November, 5-8, 1996.
- [newman2017] Newman M., Zygielbaum A., and Terry B. Static analysis and dimensional optimization of a cable-driven parallel robot. In *3rd Int. Conf. on cable-driven parallel robots (CableCon)*, Québec, 2017.
- [nguyen-av2015] Nguyen A.V. and others . Static and dynamic characterization of the 6-dofs parallel robot 3CRS. *Mechanism and Machine Theory*, 93:65–82, November 2015.
- [nguyen-dq2013] Nguyen D.Q. and others . On the simplification of cable model in static analysis of large dimension cable-driven parallel robots. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 928–934, Tokyo, November, 3-7, 2013.



- [nguyen-dq2014] Nguyen D.Q. and others . On the analysis of large-dimension reconfigurable suspended cable-driven parallel robots. In *IEEE Int. Conf. on Robotics and Automation*, pages 5728–5735, Hong-Kong, 7 November 31- June , 2014.
- [nguyen-dq2014-1] Nguyen D.Q. and Gouttefarde M. On the improvement of cable collision detection algorithm. In *2nd Int. Conf. on cable-driven parallel robots (CableCon)*, pages 29–40, Duisburg, August, 24-27, 2014.
- [nguyen-dq2014-2] Nguyen D.Q. and Gouttefarde M. Study of reconfigurable suspended cable-driven parallel robots for airplane maintenance. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Chicago, September, 14-18, 2014.
- [nguyen-dq2014-3] Nguyen D.Q. and Gouttefarde M. Stiffness matrix of 6-dof cable-driven parallel robots and its homogenization. In *ARK*, Ljubljana, June 29- July 3, 2014.
- [nguyen-tt2012] Nguyen T.T and others . Identification du modèle phénoménologique d’un robot parallèle à câbles. *Journal européen des systèmes automatisés*, 6-7, 2012.
- [nguyen-vl2020] Nguyen V.L., Lin C-Y., and Kuo C-H. Gravity compensation design of Delta parallel robots using gear-spring modules. *Mechanism and Machine Theory*, 154, 2020.
- [nguyen88] Nguyen C.C. and Pooran F.J. Closed-kinematic chain robot manipulator. Research Report CR-183031, NASA, July 1988.
- [nguyen89] Nguyen C.C. and Pooran F.J. Dynamic analysis of a 6 d.o.f. CKCM robot end-effector for dual-arm telerobot systems. *Robotics and Autonomous Systems*, 5(4):377–394, 1989.
- [nguyen89-1] Nguyen C.C. and Pooran F.J. Kinematic analysis and workspace of a 6 d.o.f. CKCM robot end-effector. *Journal of Mechanical Working Technology*, 20:283–294, 1989.
- [nguyen91] Nguyen C.C. and others . Experimental study of motion control and trajectory planning for a Stewart platform robot manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 1873–1878, Sacramento, April, 11-14, 1991.
- [nguyen91-1] Nguyen C.C. and others . Efficient computation of forward kinematics and jacobian matrix of a Stewart platform-based manipulator. In *IEEE Proc. of the Southeast Conf’91*, pages 869–874, Williamsburg, April, 7-10, 1991.
- [nguyen91-2] Nguyen C.C., Antrazi S.S., and Zhou Z-L. Analysis and implementation of a Stewart platform-based force sensor for passive compliant robotic assembly. In *IEEE Proc. of the Southeast Conf’91*, pages 880–884, Williamsburg, April, 7-10, 1991.
- [nguyen91-3] Nguyen C.C. and others . Analysis and implementation of a 6 d.o.f Stewart platform-based robotic wrist. *Computers Elec. Eng.*, 17(3):191–203, 1991.
- [nguyen92] Nguyen C.C. and others . Trajectory planning and control of a Stewart platform-based end-effector with passive compliance for part assembly. *J. of Intelligent and Robotic Systems*, 6(2-3):263–281, December 1992.
- [nguyen92-1] Nguyen C.C. and others . Analysis and experimentation of a Stewart platform-based force/torque sensor. *Int. J. of Robotics and Automation*, 7(3):133–141, 1992.
- [nguyen93] Nguyen C.C. and others . Adaptive control of a Stewart platform-based manipulator. *J. of Robotic Systems*, 10(5):657–687, July 1993.
- [niaritsiry2003] Niaritsiry F-T., Fazenda N., and Clavel R. Simulation analysis of the source of inaccuracy of a parallel manipulator. In *IEEE Int. Conf. on Robotics, Intelligent Systems and Signal Processing*, pages 266–271, Changsha, China, October, 8-13, 2003.
- [niaritsiry2004] Niaritsiry F-T., Fazenda N., and Clavel R. Study of the source of inaccuracy of a 3 dof flexure hinge-based parallel manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 4091–4096, New Orleans, April, 28-30, 2004.
- [nielsen96] Nielsen J. and Roth B. The direct kinematics of the general 6-5 Stewart-Gough mechanism. In *ARK*, pages 7–16, Portoroz-Bernadin, June, 22-26, 1996.

- [nierenberger2014] Nierenberger M. and others . Multiaxial testing of materials using a Stewart platform: case study of the Nooru-Mohamed test. *Experimental Techniques*, 38:74–83, 2014.
- [nisiwaki2002] Nisiwaki K. and others . A six axis force sensor with parallel support mechanism to measure the ground reaction force of huamnoid robot. In *IEEE Int. Conf. on Robotics and Automation*, pages 2277–2282, Washington, May, 11-15, 2002.
- [niyetkalyev2014] Niyetkalyev A. and Shintemirov A. An approach for obtaining unique kinematic solutions of a spherical parallel manipulator. In *IEEE/ASME Int. Conf. on Advanced Intelligent Mechatronics*, pages 1355–1360, Besancon, July, 8-11, 2014.
- [nokleby2005] Nokleby S.B. and others . Force capabilities of redundantly-actuated parallel manipulators. *Mechanism and Machine Theory*, 40(5):578–599, May 2005.
- [nokleby2007] Nokleby S.B. and others . Force-moment capabilities of redundantly-actuated planar-parallel architectures. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [nombrail93-phd] Nombrail N. *Analyse et commande d’une famille de robots manipulateurs a structure parallèle et redondante*. Ph.D. Thesis, École Nationale Supérieure de l’Aéronautique et de l’Espace, Toulouse, December, 2, 1993. **Keywords:** redundant robot.
- [notash96] Notash L. and Podhorodeski R.P. Forward displacement analysis of uncertainty configurations of parallel manipulators with a redundant branch. *J. of Robotic Systems*, 13(9):587–601, September 1996.
- [notash98] Notash L. Uncertainty configurations of parallel manipulators. *Mechanism and Machine Theory*, 33(1/2):123–138, January 1998.
- [notash2000] Notash L. Joint sensor fault detection for fault tolerant parallel manipulators. *J. of Robotic Systems*, 17(3):149–157, 2000.
- [notash2003] Notash L. and Huang L. On the design of fault tolerant parallel manipulators. *Mechanism and Machine Theory*, 38(1):85–101, January 2003.
- [notash2007] Notash L. and Kamalzadeh A. Inverse dynamics of wire-actuated parallel manipulators with constraining linkages. *Mechanism and Machine Theory*, 42(9):1103–1118, September 2007.
- [notash2011] Notash L. A methodology for actuator failure recovery in parallel manipulators. *Mechanism and Machine Theory*, 46(4):454–465, April 2011.
- [notash2012] Notash L. On the twist recovery methodologies after failure. In *ARK*, pages 11–18, Innsbruck, June, 25-28, 2012.
- [notash2012-1] Notash L. Failure recovery for wrench capability of wire-actuated parallel manipulators. *Robotica*, 30(6):941–950, September 2012.
- [notash2014] Notash L. Impact of perturbation on wire tension vector. In *ARK*, pages 41–49, Ljubljana, June 29-July 3, 2014.
- [notash2017] Notash L. Manipulator deflection for optimum tension of cable-driven robots with parameter variations. In *3rd Int. Conf. on cable-driven parallel robots (CableCon)*, Québec, 2017.
- [novin2016] Novin R.S. and others . Optimal motion planning for parallel robots via convex optimization and receding horizon. *Advanced Robotics*, 30(17-18):1145–1163, 2016.
- [novin2018] Novin R.S., Masouleh M.T., and Yazdani M. A new neural gas network approach for obtaining the singularity-free workspace of 3-dof planar parallel manipulators. *Proc. Instn Mech Engrs, Part C: J. Mechanical Engineering Science*, 232(1), 2018.
- [nuelle2020] Nuelle K. and others . Modeling, calibration, and evaluation of a tendon-actuated planar parallel continuum robot. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Las Vegas, October, 25-29, 2020.

- [nurahmi2014] Nurahmi L. and others . Motion capability of the 3-RPS cube parallel manipulator. In *ARK*, Ljubljana, June 29- July 3, 2014.
- [nurahmi2015] Nurahmi L. and others . Kinematic analysis of the 3-RPS Cube parallel manipulator. *J. of Mechanisms and Robotics*, 7(1), 2015.
- [nurahmi2016] Nurahmi L. and others . Reconfiguration analysis of a 4-RUU parallel manipulator. *Mechanism and Machine Theory*, 96:269–289, February 2016.
- [nurahmi2017] Nurahmi L. and others . Dimension synthesis of suspended eight cables-driven parallel robot for search-and-rescue operation. In *Int.Conf on Advanced Mechatronics, Intelligent Manufacture, and Industrial Automation (ICAMIMIA)*, 2017.
- [nurahmi2019] Nurahmi L., Caro S., and Solichin M. A novel ankle rehabilitation device based on a reconfigurable 3-RPS parallel manipulator. *Mechanism and Machine Theory*, 134:135–150, 2019.
- [nzue2010] Nzue R-M.A. and others . Comparative analysis of the repeatability performance of a serial and parallel robot. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Taipei, October, 18-22, 2010.
- [obrien2001] O’Brien J.F. and Wen J.T. On kinematic instability of parallel robots. In F.C. Park C.C. Iurascu, editor, *Computational Kinematics*, pages 279–290. EJCK, May, 20-22, 2001. **Keywords:** singularity.
- [obrien2001-1] O’Brien J.F. and Wen J.T. Kinematic control of parallel robots in the presence of unstable singularities. In *IEEE Int. Conf. on Robotics and Automation*, pages 3154–3159, Seoul, May, 23-25, 2001.
- [obrien2005] O’Brien J.F., Jafari F., and Wen J.T. Self-motion in spatial parallel mechanisms with more than three legs. In *IEEE Int. Conf. on Robotics and Automation*, pages 966–971, Barcelona, April, 19-22, 2005.
- [oen2007] Oen K-T. and Wang L-C T. Optimal dynamic trajectory planning for linearly actuated platform type parallel manipulators having task space redundant degree of freedom. *Mechanism and Machine Theory*, 42(7):727–750, June 2007.
- [oetomo2008] Oetomo D., Daney D., Shirinzadeh B., and Merlet J-P. Certified workspace analysis of 3RRR planar parallel flexure mechanism. In *IEEE Int. Conf. on Robotics and Automation*, pages 3838–3843, Pasadena, May, 19-23, 2008.
- [oetomo2009] Oetomo D., Daney D., Shirinzadeh B., and Merlet J-P. An interval-based method for workspace analysis of planar flexure-jointed mechanism. *ASME J. of Mechanical Design*, 131(1), January 2009.
- [oftadeh2010] Oftadeh R., Aref M.M., and Taghirad H.D. Forward kinematic analysis of a planar cable driven redundant parallel manipulator using force sensors. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 2295–2300, Taipei, October, 18-22, 2010.
- [ogawa2006] Ogawa H. and Simojo M. Development of 2-dof haptic device driven directly by shaft motors. *J. of Robotics and Mechatronics*, 18(4):392–399, August 2006.
- [oh2003] Oh S-R. and Agrawal S.K. Cable-suspended planar parallel robots with redundant cables: controller with positive cable tensions. In *IEEE Int. Conf. on Robotics and Automation*, pages 3023–3028, Taipei, September, 14-19, 2003.
- [oh2004] Oh S-R. and others . Dynamic modeling and robust controller design of a two-stage parallel cable robot. In *IEEE Int. Conf. on Robotics and Automation*, pages 3678–3683, New Orleans, April, 28-30, 2004.
- [oh2005] Oh S-R. and others . A dual stage planar cable robot: dynamic modeling and design of a robust controller with positive inputs. *ASME J. of Mechanical Design*, 127(4):612–620, July 2005.
- [oh2005-1] Oh S-R. and others . Dynamic modeling and robust controller design of a two-stage parallel cable robot. *Multibody System Dynamics*, 13:385–399, 2005.
- [oh2006] Oh S-R. and Agrawal S.K. Generation of feasible set points and control of a cable robot. *IEEE Trans. on Robotics and Automation*, 22(3):551–558, July 2006.

- [oh2006-1] Oh S-R. and Agrawal S.K. The feasible workspace analysis of a set point control for a cable-suspended robot with input constraints and disturbances. *IEEE Trans. on Control Systems Technology*, 14(4):751–742, July 2006.
- [oh2007] Oh S-R. and Agrawal S.K. A control Lyapunov approach for feedback control of cable-suspended robots. In *IEEE Int. Conf. on Robotics and Automation*, pages 4544–4549, Roma, April, 10-14, 2007.
- [oh2007-1] Oh S-R. and Agrawal S.K. A control lyapunov approach for feedback control of cable-suspended robots. In *IEEE Int. Conf. on Robotics and Automation*, Roma, April, 10-14, 2007.
- [oiwa2000] Oiwa T. and Tamaki M. Study on Abbe’s principle in parallel kinematics. In *2nd Chemnitzer Parallelkinematik Seminar*, pages 345–353, Chemnitz, April, 12-13, 2000.
- [oiwa2005] Oiwa T. Error compensation system for joints, links and machine frame of parallel kinematics machines. *Int. J. of Robotics Research*, 24(12):1087–1102, December 2005.
- [oiwa2007] Oiwa T. Ultra-precision machine tool or coordinate measuring machine using hexapod-type measurement device for six degree-of-freedom relative motions between cutting tool/probe and workpiece. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [ojala94] Ojala P., Arai T., Tanikawa T., and Koivo H. Motion optimization and control of the 7 d.o.f micro manipulator. In *Scandinavian Symposium on Robotics*, pages 132–136, October, 4-6, 1994.
- [ojala94-1] Ojala P., Arai T., and Tanikawa T. Kinematic analysis and motion control of a redundant micro manipulator. In *2nd Japan-France Congress on Mechatronics*, pages 473–476, Takamatsu, November, 1-3, 1994.
- [olarra2017] Olarra A. and others . Machine with the WalkingHex: a walking parallel kinematic machine-tool for in situ operation. *Annals of the CIRP*, 66:361–364, 2017.
- [olds2015] Olds K.C. Global indices for kinematic and force transmission performance in parallel robots. *IEEE Trans. on Robotics*, 31(2):494–500, April 2015.
- [olea2000] Olea G., Plitea N., and Takamusa K. Kinematical analysis and simulation of a new parallel mechanism for robotics application. In *ARK*, pages 403–410, Piran, June, 25-29, 2000.
- [olea2003] Olea G., Takamasu K., and Hirose K. Development of parallel positioning systems for precise micro/mini applications. In *Int. Precision Assembly Seminar IPAS’2003*, pages 95–101, Bad Hofgastein, March, 17-19, 2003.
- [oliviers95] Oliviers M.P. and Mayer J.R.R. Global kinematic calibration of a Stewart platform. *ASME DSC*, 57(1):129–136, 1995.
- [orin81] Orin D.E. and Oh S.Y. Control of force distribution in robotic mechanisms containing closed kinematic chains. *ASME J. of Dynamic Systems, Measurement and Control*, 102(2):134–141, June 1981.
- [orozcomuniz2017] Orozco-Muniz J.J., J.D. and Cervantes-Sanchez and Rico-Martínez J.M. Dexterity indices for planar parallel manipulators. *Robotics and Computer-Integrated Manufacturing*, 46:144–155, 2017.
- [orsino2015] Orsino R.M.M. and others . Analytical mechanical approaches in the dynamic modelling of Delta mechanism. *Robotica*, 33(4):953–973, May 2015.
- [osumi2000] Osumi H. and others . Development of a manipulator suspended to parallel wire structure. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Takamatsu, Japan, October 30- November 5, 2000.
- [ota98] Ota Y. and others . Research on a six-legged walking robot with parallel mechanism. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Victoria, October 1998.
- [otis2009] Otis M.J.D. and others . Interference estimated time of arrival on a 6-dof cable-driven haptic foot platform. In *IEEE Int. Conf. on Robotics and Automation*, pages 1067–1072, Kobe, May, 14-16, 2009.
- [otis2009-1] Otis M.J.D. and others . Cable tension control and analysis of reel transparency for 6-dof haptic foot platform on a cable-driven locomotion interface. *J. of Electrical, Computer & Systems Eng.*, pages 16–29, 2009.

- [otis2009-2] Otis M.J.D. and others . Determination and management of cable interferences between two 6-dof foot platforms in a cable-driven locomotion interface. *IEEE Trans. on Systems, Man, and Cybernetics Part A: systems and Humans*, 39(3), May 2009.
- [otis2010] Otis M.J.D. and others . Human safety algorithms for a parallel cable-driven haptic interface. In *Brain, Body and Machine*, pages 187–200, 2010.
- [ottaviano2001] Ottaviano E. and Ceccarelli M. Optimal design of CAPAMAN (Cassino parallel manipulator) with prescribed workspace. In F.C. Park C.C. Iurascu, editor, *Computational Kinematics*, pages 35–44. EJCK, May, 20-22, 2001. **Keywords:** design,optimal design,workspace.
- [ottaviano2001-1] Ottaviano E. *Progettazione ottimizzata di manipulatori paralleli*. Ph.D. Thesis, University of Cassino, Cassino, November 2001. **Keywords:** 3 dof robot,optimal design,mechanical architecture.
- [ottaviano2001-2] Ottaviano E., Gosselin C.M., and Ceccarelli M. Singularity analysis of CaPaMan: a three-degree of freedom spatial parallel manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 1295–1300, Seoul, May, 23-25, 2001.
- [ottaviano2002] Ottaviano E. and Ceccarelli M. Optimal design of CAPAMAN (Cassino parallel manipulator) with a specific orientation workspace. *Robotica*, 20(2):159–166, March 2002.
- [ottaviano2002-1] Ottaviano E. and others . CaTraSys (Cassino Traking System): A wire system for experimental evaluation of robot workspace. *Robotics and Mechatronics*, 14(1):78–87, 2002.
- [ottaviano2003] Ottaviano E., Ceccarelli M., and Thomas F. Singularity configurations of a 6-wire parallel architecture. In *RAAD*, Cassino, May, 7-10, 2003.
- [ottaviano2003-1] Ottaviano E. and Carbone G. A procedure for the multi objective design of parallel manipulators. In *RAAD*, Cassino, May, 7-10, 2003.
- [ottaviano2005] Ottaviano E. and others . Analysis, design and construction of a discretely-actuated multi-module parallel manipulator. In *Computational Kinematics*, Cassino, May, 4-6, 2005.
- [ottaviano2005-1] Ottaviano E. and others . A low-cost easy operation 4-cables driven parallel manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 4019–4024, Barcelona, April, 19-22, 2005.
- [ottaviano2007] Ottaviano E., Ceccarelli M., and Palmucci F. Experimental identification of kinematic parameters and joint mobility of human limbs. In *2nd Int. Congress, Design and Modelling of mechanical systems*, Monastir, March, 19-21, 2007.
- [ottaviano2007-1] Ottaviano E. and Ceccarelli M. Numerical and experimental characterization of singularity of a six-wire parallel architecture. *Robotica*, 25(3):315–324, May 2007.
- [ottaviano2007-2] Ottaviano E. A system for tension monitoring in cable-based parallel architectures. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [ottaviano2007-3] Ottaviano E., Ceccarelli M., and De Ciantis M. A 4-4 cable-based parallel manipulator for an application in hospital environment. In *15th Mediterranean Conf. on Control and Automation*, Athens, July, 27-29, 2007.
- [ottaviano2008] Ottaviano E. Design issues and application of cable-based parallel manipulators for rehabilitation therapy. *Applied Bionics and Biomechanics*, 5(2):65–75, June 2008.
- [ottaviano2009] Ottaviano E., Ceccarelli M., and Grande S. An experimental evaluation of human walking. In *3eme Congrès International Conception et Modélisation des Systèmes Mécaniques CSM*, Hammamet, March, 16-18, 2009.
- [ottaviano2010] Ottaviano E., Ceccarelli M., and Plamucci F. An application of CaTraSys, a cable-based parallel measuring system for an experimental characterization of human walking. *Robotica*, 28(1):119–133, January 2010.
- [ottaviano2021] Ottaviano E., Arena A., and Gattuli V. Geometrically exact three-dimensional modeling of cable-driven parallel manipulators for end-effector positioning. *Mechanism and Machine Theory*, 155, 2021.

- [ottoboni2007] Ottoboni A. and others . Equivalent spatial mechanisms for modelling passive motion of the human knee. *J. of Biomechanics*, 40(0):S144–S144, 2007.
- [ouerfelli91] Ouerfelli M. and Kumar V. Optimization of a spherical five bar parallel drive linkage. In *ASME Design Automation Conf.*, Miami, September, 22-25, 1991.
- [ouerfelli94] Ouerfelli M. and Kumar V. Optimization of a spherical five bar parallel drive linkage. *ASME J. of Mechanical Design*, 116(1):166–173, March 1994.
- [ouyang2002] Ouyang P.R., Zhang W.J., and Wu F.X. Nonlinear PD control for trajectory tracking with consideration of the design for control methodology. In *IEEE Int. Conf. on Robotics and Automation*, pages 4126–4131, Washington, May, 11-15, 2002.
- [ouyang2014] Ouyang B. and Shang W-W. Wrench-feasible workspace based optimization of the fixed and moving platforms for cable-driven parallel manipulators. *Robotics and Computer-Integrated Manufacturing*, 30(6):629–635, December 2014.
- [ouyang2015] Ouyang B. and Shang W-W. A new computation method for the force-closure workspace of cable-driven parallel manipulators. *Robotica*, 33(3):537–547, March 2015.
- [overholt91] Overholt J.L. and Zeid A.A. Partial state feedback linearization based control for a Stewart platform (Part I: Theory). In *23th Summer Computer Simulation Conf.*, pages 512–517, Baltimore, July, 22-24, 1991.
- [ozdemir2016] Özdemir M. Singularity-consistent payload locations for parallel manipulators. *Mechanism and Machine Theory*, 97:171–189, March 2016.
- [ozdemir2017] Özdemir M. Dynamic analysis of planar parallel robots considering singularities and different payloads. *Robotics and Computer-Integrated Manufacturing*, 46:114–121, 2017.
- [ozdemir2017-1] Özdemir M. Removal of singularities in the inverse dynamics of parallel robots. *Mechanism and Machine Theory*, 107:71–86, 2016.
- [ozdemir2019] Özdemir M. High-order singularities of 5R planar parallel robots. *Robotica*, 37:233–245, 2019.
- [ozgoren2019] Ozgoren M.K. Kinematic and kinetostatic analysis of parallel manipulators with emphasis on position, motion, and actuation singularities. *Robotica*, 37:599–625, 2019.
- [ozgur2010] Özgür E., Andreff N., and Martinet P. Vector-based dynamic modeling and control of the Quattro parallel robot by means of leg orientations. In *IEEE Int. Conf. on Robotics and Automation*, pages 638–643, Anchorage, May, 3-8, 2010.
- [ozgur2012] Özgür E. *From Lines To Dynamics of Parallel Robots*. Ph.D. Thesis, Université Blaise Pascal, Clermont-Ferrand, July, 13, 2012. **Keywords:** dynamics, control.
- [ozgur2013] Özgür E. High speed parallel kinematic manipulator state estimation from leg observation. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 424–429, Tokyo, November, 3-7, 2013.
- [ozgur2014] Özgür E. A vision-based generic dynamic model of PKMs and its experimental validation on the Quattro parallel robot. In *IEEE/ASME Int. Conf. on Advanced Intelligent Mechatronics*, Besancon, July, 8-11, 2014.
- [paccot2007] Paccot F., Andreff N., and Martinet P. Enhancing tracking performances of parallel kinematic machines. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [paccot2008] Paccot F. and others . A vision-based computed torque control for parallel kinematic machines. In *IEEE Int. Conf. on Robotics and Automation*, pages 1556–1561, Pasadena, May, 19-23, 2008.
- [paccot2009] Paccot F., Andreff N., and Martinet P. A review on the dynamic control of parallel kinematic machines: theory and experiments. *Int. J. of Robotics Research*, 28(3):395–416, March 2009.
- [padmanabhan92] Padmanabhan B. and others . Closed-form inverse kinematic analysis of variable-geometry truss manipulator. *ASME J. of Mechanical Design*, 114(3):438–443, September 1992.
- [paganelli2007] Paganelli D. Avoiding parallel singularities of 3UPS and 3UPU spherical wrists. In *IEEE Int. Conf. on Robotics and Automation*, pages 1201–1206, Roma, April, 10-14, 2007.

- [pagis2013] Pagis G. and others . Optimal motion generation for exiting a parallel manipulator from a type 2 singularity. In *ASME IDETC/CIE*, Portland, August 2103.
- [pagis2015] Pagis G. and others . Enlarging parallel robot workspace through type-2 singularity crossing. *Control Eng. Practice*, 39:1–11, 2015.
- [pagis2015-phd] Pagis G. *Augmentation de la taille de l'espace de travail opérationnel des robots parallèles en traversant les singularités de Type 2: génération de trajectoires optimales et commande avancée*. Ph.D. Thesis, Ecole Centrale de Nantes, Nantes, January, 13, 2015. **Keywords:** singularity,workspace.
- [palmieri2018] Palmieri G. and others . Vision-based kinematic calibration of a small-scale spherical parallel kinematic machine. *Robotics and Computer-Integrated Manufacturing*, 49:162–169, 2018.
- [palpacelli2015] Palpacelli M. and others . Analysis and design of a reconfigurable 3-dof parallel manipulator for multimodal tasks. *IEEE/ASME Trans. on Mechatronics*, 20(4):1975–1985, August 2015.
- [palpacelli2016] Palpacelli M. Static performance improvement of an industrial robot by means of a cable-driven redundantly actuated system. *Robotics and Computer-Integrated Manufacturing*, 38:1–8, 2016.
- [pan2014] Pan Y. and Gao F. Mechanism topology design for novel parallel- parallel hexapod robot. In *UKACC International Conference on Control*, Loughborough, July, 9-11, 2014.
- [pan2019] Pan Y., Chen Y., and Li L. Analysis of kinematic dexterity and stiffness performance based on spring's wire-driven 4-SPS/U rigid-flexible parallel trunk joint mechanism. *International Journal of Structural Integrity*, 10(6):850–867, 2019.
- [pang93] Pang H. and Shahinpoor M. Analysis of static equilibrium of a parallel manipulator. *Robotica*, 11(5):433–443, 1993.
- [pang94] Pang H. and Shahinpoor M. Inverse dynamics of a parallel manipulator. *J. of Robotic Systems*, 11(8):693–702, December 1994.
- [parenti90] Parenti-Castelli V. and Innocenti C. Direct displacement analysis for some classes of spatial parallel mechanisms. In *8th RoManSy*, pages 123–130, Cracow, July, 2-6, 1990.
- [parenti90-1] Parenti-Castelli V. and Innocenti C. Forward displacement analysis of parallel mechanisms: closed-form solution of PRR-3S and PPR-3S structures. In *ASME Proc. of the the 21th Biennial Mechanisms Conf.*, pages 263–269, Chicago, September, 16-19, 1990.
- [parenti92] Parenti-Castelli V. Recent techniques for direct position analysis of the generalized Stewart platform mechanism. In *ARK*, pages 129–135, Ferrare, September, 7-9, 1992.
- [parenti92-1] Parenti-Castelli V. and Innocenti C. Forward displacement analysis of parallel mechanisms: closed-form solution of PRR-3S and PPR-3S structures. *ASME J. of Mechanical Design*, 114(1):68–73, March 1992.
- [parenti95] Parenti-Castelli V. and Di Gregorio R. A three-equation numerical method for the direct kinematics of the generalized Gough-Stewart platform. In *9th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 837–841, Milan, August 30- September 2, 1995.
- [parenti96] Parenti-Castelli V. and Di Gregorio R. A real-time computation scheme for the direct position analysis of the 6-3 Stewart platform. In *27th Int. Symp. on Industrial Robots (ISIR)*, pages 581–585, Milan, October, 6-8, 1996.
- [parenti98] Parenti-Castelli V. and Di Gregorio R. Real-time computation of the actual posture of the general geometry 6-6 fully parallel mechanism using only two extra rotary sensors. *ASME J. of Mechanical Design*, 120(4):549–554, December 1998.
- [parenti99] Parenti-Castelli V. and Di Gregorio R. Determination of the actual configuration of the general Stewart platform using only one additional sensor. *ASME J. of Mechanical Design*, 121(1):21–25, March 1999.
- [parenti2000] Parenti-Castelli V. and Di Gregorio R. A new algorithm based on two extra sensors for real-time computation of the actual configuration of the generalized Stewart-Gough manipulator. *ASME J. of Mechanical Design*, 122(3):294–298, September 2000.

- [parenti2000-1] Parenti-Castelli V. and Di Gregorio R. Parallel mechanisms applied to the human knee passive motion simulation. In *ARK*, pages 333–344, Piran, June, 25-29, 2000.
- [parenti2000-2] Parenti-Castelli V. and Di Gregorio R. Influence of manufacturing errors on the kinematic performance of the 3-UPU parallel mechanism. In *2nd Chemnitzer Parallelkinematik Seminar*, pages 85–99, Chemnitz, April, 12-13, 2000.
- [parenti2001] Parenti-Castelli V. and Di Gregorio R. Real-time actual pose determination of the general fully parallel spherical wrist, using only one extra sensor. *J. of Robotic Systems*, 18(12):723–729, 2001.
- [parenti2002] Parenti-Castelli V. and Venanzi S. On the joint clearance effects in serial and parallel manipulators. In *Workshop on Fundamental Issues and Future Research Directions for Parallel Mechanisms and Manipulators*, pages 215–223, Québec, October, 3-4, 2002.
- [parenti2004] Parenti-Castelli V. and others . On the modeling of passive motion of the human knee joint by means of equivalent planar and spatial parallel mechanisms. *Autonomous Robots*, 16(2):219–232, 2004.
- [park-jh2015] Park J-H., Stegall P., and Agrawal S.K. Dynamic brace for correction of abnormal postures of the human spine. In *IEEE Int. Conf. on Robotics and Automation*, pages 5922–5927, Seattle, May, 26-30, 2015.
- [park-y2020] Park Y. and others . WeHAPTIC: a wearable haptic interface for accurate position tracking and interactive force control. *Mechanism and Machine Theory*, 153, 2020.
- [park96] Park M.K. and Kim J.W. Kinematic manipulability of closed chains. In *ARK*, pages 99–108, Portoroz-Bernadin, June, 22-26, 1996.
- [park2001] Park M.K. and others . Development of the PNU vehicle driving simulator and its performance evaluation. In *IEEE Int. Conf. on Robotics and Automation*, pages 2325–2330, Seoul, May, 23-25, 2001.
- [parrish73] Parrish R.V. and others . Motion software for a synergistic six-degree-of-freedom motion base. Research Report D-7350, NASA, December 1973.
- [parsa2010] Parsa S.S, Daniali H.M., and Ghaderi R. Optimization of parallel manipulator trajectory for obstacle and singularity avoidances based on neural network. *The International Journal of Advanced Manufacturing Technology*, 51:811–816, 2010.
- [parsa2015] Parsa S.S, Boudreau R., and Carretero J.A. Reconfigurable mass parameters to cross direct kinematics singularities in parallel manipulators. *Mechanism and Machine Theory*, 85:53–63, 2015.
- [parushev90] Parushev P. and Chakarov D. Structural investigation of manipulators with linear drivers. In *8th RoManSy*, pages 148–155, Cracovie, July, 2-6, 1990.
- [pashkevich2005] Pashkevich A., Wenger P., and Chablat D. Design strategies for the geometric synthesis of Orthoglide-type mechanisms. *Mechanism and Machine Theory*, 40(8):907–930, August 2005.
- [pashkevich2006] Pashkevich A., Chablat D., and Wenger P. Kinematics and workspace analysis of a three-axis parallel manipulator: the Orthoglide. *Robotica*, 24(1):39–49, January 2006.
- [pashkevich2007] Pashkevich A., Wenger P., and Chablat D. Kinematic and stiffness analysis of the Orthoglide, a PKM with simple, regular workspace and homogeneous performances. In *IEEE Int. Conf. on Robotics and Automation*, pages 549–554, Roma, April, 10-14, 2007.
- [pashkevich2008] Pashkevich A., Wenger P., and Chablat D. Stiffness analysis of 3-d.o.f. overconstrained translational parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 1562–1567, Pasadena, May, 19-23, 2008.
- [pashkevich2008-1] Pashkevich A. and others . *Parallel manipulators, New Developments*, chapter Calibration of 3-d.o.f. translational parallel manipulator using leg observations, pages 225–240. ITECH, April 2008. **Keywords:** 3 dof robot, calibration.
- [pashkevich2010] Pashkevich A., Klimchik A., and Chablat D. Stiffness analysis of parallel manipulators with preloaded passive joints. In *ARK*, pages 465–474, Piran, June 28- July 1, 2010.



- [pashkevich2010-1] Pashkevich A. and others . Stiffness modelling of paralelogram-based parallel manipulators. In *3rd European Conf. on Mechanism Science (Eucomes)*, pages 675–682, Cluj-Napoca, September, 14-17, 2010.
- [pashkevich2010-2] Pashkevich A. and others . Performance evaluation of parallel manipulators for milling application. In *20th CIRP Design conference*, pages 675–682, Nantes, April, 19-20, 2010.
- [pasila2012] Pasila F. and otehrs . Inverse static analysis of massive parallel arrays of three-state actuators via artificial intelligence. In *RoManSy*, Paris, June, 12-15, 2012.
- [pasqui-boutard-94-phd] Pasqui-Boutard V. *Méthode systématique pour la modélisation et l’analyse cinématique des mécanismes complexes*. Ph.D. Thesis, Université Pierre et Marie Curie, Paris, August, 29, 1994. **Keywords:** kinematics, singularity, workspace, mechanism theory.
- [pastorelli2009] Pastorelli S. and Batterezato A. Singularity analysis of a 3 degrees-of-freedom parallel manipulator. In *Computational Kinematics*, pages 331–340, Duisburg, May, 6-8, 2009.
- [patarinski93] Patarinski S.P. and Uchiyama M. Position/orientation decoupled parallel manipulator. In *ICAR*, pages 153–158, Tokyo, November, 1-2, 1993.
- [patarinski94] Patarinski S.P. Parallel robots: a review, 1994. Communication personnelle. **Keywords:** state of the art.
- [patel97] Patel A.J. and Ehmann K.F. Volumetric error analysis of a Stewart platform based machine tool. *Annals of the CIRP*, 46/1/1997:287–290, 1997.
- [patra2020] Patra B. and others . Analytical determination of the longest cylinder free of gain-type singularity inside the workspace of a 3-RPS spatial parallel manipulator. In *ARK*, 2020.
- [paty2021] Paty T. and others . Cable-driven parallel robot modelling considering pulley kinematics and cable elasticity. *Mechanism and Machine Theory*, 159, 2021.
- [pavlovic2006] Pavlovic N., Keimer R., and H-J. Frake. Design of an adaptronic swivel joint for parallel robots based on quasi-static clearance adjustment. In *5th Chemnitzer Parallelkinematik Seminar*, pages 341–355, Chemnitz, April, 25-26, 2006.
- [pazmino2011] Pazmño R.S. and others . Experiences and results from designing and developing a 6 dof underwater parallel robot. *Robotics and Autonomous Systems*, 59(2):101–112, February 2011.
- [pedemonte2020] Pedemonte N. and others . *FASTKIT: A Mobile Cable-Driven Parallel Robot for Logistics*, pages 141–163. Springer International Publishing, 2020. **Keywords:** wire robot.
- [pedrammehr2018] Pedrammehr S. and others . Dynamic analysis of Hexarot: axis-symmetric parallel manipulator. *Robotica*, 36:225–240, 2018.
- [pedrammehr2020] Pedrammehr S., Asadi H., and Nahavandi S. A study on vibrations of Hexarot-Based high-g centrifugal simulators. *Robotica*, 38:299–316, 2020.
- [peidro2015] Peidro A. and others . Performing nonsingular transitions between assembly modes in analytic parallel manipulators by enclosing quadruple solutions. *ASME J. of Mechanical Design*, 137, December 2015.
- [peirs2000] Peirs J., Reynaerts D., and Van Brussel H. Design of miniature parallel manipulators for integration in a self-propelling endoscope. *Sensors and Actuators*, A(85):409–417, 2000.
- [pendar2007] Pendar H. and others . Kinematic analysis of the spherically actuated platform manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 175–180, Roma, April, 10-14, 2007.
- [pendar2008] Pendar H. and others . Singularity analysis of a 3 dof parallel manipulator using infinite constraint plane method. *J. of Intelligent and Robotic Systems*, 53(1):21–34, September 2008.
- [pendar2011] Pendar H. and others . Singularity analysis of parallel manipulator using constraint plane method. *Mechanism and Machine Theory*, 46:33–43, 2011.
- [peng-b2019] Peng B. and others . Kinematics and orientation capability of a family of 3-dof parallel mechanisms. *Mechanism and Machine Theory*, 142, 2019.

- [peng-m-2023] Peng M. and others . Dynamic modeling and characterization of compliant cable-driven parallel robots containing flexible cables. *Robotica*, 41:3160–3174, October 2023.
- [peng2010] Peng Z., Liu F., and Yang L. Control based on double neural networks-pi for parallel mechanism. *Robotics and Computer-Integrated Manufacturing*, 26(3):250–252, June 2010.
- [pennock90] Pennock G.R. and Kassner D.J. Kinematic analysis of a planar eight-bar linkage: application to a platform-type robot. In *ASME Proc. of the 21th Biennial Mechanisms Conf.*, pages 37–43, Chicago, September, 16-19, 1990.
- [pennock91] Pennock G.R. and Kassner D.J. The workspace of a general geometry planar three degree of freedom platform manipulator. In *ASME Design Automation Conf.*, pages 537–544, Miami, September, 22-25, 1991.
- [pennock93] Pennock G.R. and Kassner D.J. The workspace of a general geometry planar three degree of freedom platform manipulator. *ASME J. of Mechanical Design*, 115(2):269–276, June 1993.
- [perez2004] Perez A. and McCarthy J.M. Dual quaternion synthesis of constrained robotic systems. *ASME J. of Mechanical Design*, 126(3):425–435, May 2004.
- [perju95] Perju D. and Dolga L. An optimizing study of a 6 components force transducer. In *9th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 2925–2929, Milan, August 30- September 2, 1995.
- [pernechele97] Pernechele C., Bortoletto F., and Reif K. Position-control for active secondary mirror of a two-mirror telescope. *Proc. of the SPIE*, 3112:172–180, 1997.
- [pernechele2000] Pernechele C., Bortoletto F., and Giro E. Neural network algorithm controlling a hexapod platform. In *IEEE IJC on Neural Network*, Como, July, 24-27, 2000.
- [pernette96] Pernette E. and Clavel R. Parallel robot and microrobotics. In *6th ISRAM*, pages 535–542, Montpellier, May, 28-30, 1996.
- [pernette97] Pernette E. and others . Design of parallel robots in microrobotics. *Robotica*, 15(4):417–420, July - August , 1997.
- [perng99] Perng M-H. and Hsiao L. Inverse kinematics solutions for a fully parallel robot with singularity robustness. *Int. J. of Robotics Research*, 18(6):575–583, June 1999.
- [pernkopf2002] Pernkopf F. and Husty M. Singularity analysis of spatial Stewart-Gough platform with planar base and platform. In *ASME Design Engineering Technical Conference*, Montréal, September 29- October 2, 2002.
- [pernkopf-2003-phd] Pernkopf F. *Workspace analysis of Stewart-Gough platforms*. Ph.D. Thesis, Baufakultät, University of Innsbruck, September, 11, 2003. **Keywords:** workspace,singularity.
- [perreault2008] Perreault S. and Gosselin C.M. Cable-driven parallel mechanisms: application to a locomotion interface. *ASME J. of Mechanical Design*, 130(10):102301–1/8, October 2008.
- [persson2003] Persson J.G. and Andersson K. Modeling and model based performance prediction for parallel kinematics manipulators. In *Mechatronics Meeting*, Gothenburg, August, 28-29, 2003.
- [pessi2007] Pessi P. and others . A mobile robot with parallel kinematics to meet the requirements for assembling and machining the ITER vacuum vessel. *Fusion Engineering and Design*, 82(15-24):2047–2054, October 2007.
- [peters2000] Peters C. and others . Design and construction of the 3.2 Mev cathode assembly for DARHT II. In *XX Int. Linac Conf.*, pages 437–439, Monterey, August, 21-25, 2000.
- [petersen2000] Petersen H.G. Easy and general kinematics for parallel manipulators. In *IASTED Int. Conf. Robotics and Automation*, pages 29–33, Honolulu, August, 14-16, 2000.
- [peterson2001] Peterson R. and Hobson J.C. High frequency motion simulator. In *SPIE, Aerosense 2001*, pages 225–237, Orlando, April, 16-20, 2001.
- [peterson2002] Peterson R. and others . 6 dof high-frequency motion simulator phaseII. In *SPIE, Aerosense 2002*, pages 56–66, Orlando, April, 1-5, 2002.

- [petitt2002] Petitt J.D. and Miller K. Six-dimensional visualisation of end-effector pose using colour spaces. In *Australasian Conf. on Robotics and Automation*, pages 216–221, Auckland, November, 27–29, 2002.
- [petrovic99] Petrovic P.B. and Milacic V.R. Closed-form resolution scheme of the direct kinematics of parallel link systems based on redundant sensory information. *Annals of the CIRP*, 48(1):341–344, 1999.
- [petuya2005] Petuya V. and others . Resolution of the direct position problem of parallel kinematic platform using the geometrical-iterative method. In *IEEE Int. Conf. on Robotics and Automation*, pages 3255–3260, Barcelona, April, 19–22, 2005.
- [petuya2008] Petuya V. and others . A new general-purpose method to solve the forward position problem in parallel manipulators. *Advanced Robotics*, 22(4):395–409, 2008.
- [peyron2017] Peyron Q., Charpentier I., and Laroche E. Continuation for stability domain determination with application to a cable-driven parallel robot. In *20th IFAC World Congress*, 2017.
- [peysah85] Peysah E.E. Determination of the position of the member of three joints and two joints four member. Assur group with rotational pairs. *Machinery*, (5):55–61, 1985. In russian.
- [pfreundsouch91] Pfreundsouch G.H., Kumar V., and Sugar T.G. Design and control of a 3 d.o.f. in-parallel actuated manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 1659–1664, Sacramento, April, 11–14, 1991.
- [pham-cb2005] Pham C.B., Yeo S.H., and Yang G. Tension analysis of cable-driven parallel mechanisms. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Edmonton, August, 2–6, 2005.
- [pham-cb2005-1] Pham C.B., Yang G., and Yeo S.H. Dynamic analysis of cable-driven parallel mechanisms. In *IEEE/ASME Int. Conf. on Advanced Intelligent Mechatronics*, Monterey, July, 24–28, 2005.
- [pham2004] Pham H.H. and Chen I-M. Optimal synthesis for workspace and manipulability of parallel flexure mechanism. In *11th IFToMM World Congress on the Theory of Machines and Mechanisms*, Tianjin, April, 1–4, 2004.
- [pham2009] Pham H.H. and Chen I-M. Workspace analysis of fully restrained cable-driven manipulators. *Robotics and Autonomous Systems*, 57(9):901–912, September 2009.
- [pi2011] Pi Y. and Wang X. Trajectory tracking control of a 6-DOF hydraulic parallel robot manipulator with uncertain load disturbances. *Control Eng. Practice*, 19:185–193, 2011.
- [piao2015] Piao J. and others . Simulation of effect of cable robot configuration on natural frequency. In *IEEE International Conference on Mechatronics and Automation*, Beijing, August, 2–5, 2015.
- [piao2017] Piao J. and others . Open-loop position control of a polymer cable-driven parallel robot via a viscoelastic cable model for high payload workspaces. *Advances in Mechanical Engineering*, 9(12), 2017.
- [piao2017-1] Piao J. and others . Development of a high payload cable-driven parallel robot. In *17th International Conference on Control, Automation and Systems (ICCAS)*, Jeju, October, 18–21, 2017.
- [piao2017-2] Piao J. and others . Development of a high payload cable-driven parallel robot. In *17th International Conference on Control, Automation and Systems (ICCAS)*, Jeju, October, 18–21, 2017.
- [piao2017-3] Piao J. and others . A polymer cable creep modeling for a cable-driven parallel robot in a heavy payload application. In *3rd Int. Conf. on cable-driven parallel robots (CableCon)*, Québec, 2017.
- [picard2018] Picard E. and others . Pulleys and force sensors influence on payload estimation of cable-driven parallel robots. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Madrid, October, 1–5, 2018.
- [piccin2009] Piccin O. and others . Kinematic modeling of a 5-dof parallel mechanism for semi-spherical workspace. *Mechanism and Machine Theory*, 44(8):1485–1496, August 2009.
- [pickard-phd2018] Pickard J.K. *Analysis and Synthesis Methods for the Appropriate Design of Parallel Mechanisms*. Ph.D. Thesis, University of New Brunswick, April 2018. **Keywords:** mechanical architecture, optimal design.

- [pickard2016] Pickard J.K., Carretero J.A., and Merlet J-P. Accounting for tolerances in the design parameters of the *3Rrr*. In *ARK*, Grasse, June, 27-30, 2016.
- [pierrot90] Pierrot F., Benoit M., Dauchez P., and Galmiche J-P. High speed control of a parallel robot. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 949–954, Ibaraki, Japan, July, 3-6, 1990.
- [pierrot90-1] Pierrot F., Reynaud C., and Fournier A. DELTA: a simple and efficient parallel robot. *Robotica*, 8:105–109, 1990.
- [pierrot91] Pierrot F. *Robots Pleinement Parallèles Légers : Conception Modélisation et Commande*. Ph.D. Thesis, Université Montpellier II, Montpellier, April, 24, 1991. **Keywords:** mechanical architecture, control, applications.
- [pierrot91-1] Pierrot F., Dauchez P., and Fournier A. Towards a fully-parallel 6 d.o.f. robot for high speed applications. In *IEEE Int. Conf. on Robotics and Automation*, pages 1288–1293, Sacramento, April, 11-14, 1991.
- [pierrot91-2] Pierrot F., Dauchez P., and Fournier A. Hexa: a fast six-dof fully parallel robot. In *ICAR*, pages 1159–1163, Pise, June, 19-22, 1991.
- [pierrot91-3] Pierrot F., Dauchez P., and Fournier A. Fast parallel robots. *J. of Robotic Systems*, 8(6):829–840, December 1991.
- [pierrot92] Pierrot F. and others . Manipulations robotiques à haute vitesse: une solution pleinement parallèle. *APII*, 26(1):3–14, 1992.
- [pierrot97] Pierrot F. and Chiacchio P. Evaluation of velocity capabilities for redundant parallel robot. In *IEEE Int. Conf. on Robotics and Automation*, pages 774–779, Albuquerque, April, 21-28, 1997.
- [pierrot99] Pierrot F. and Company O. H4: a new family of 4-dof parallel robots. In *IEEE/ASME Int. Conf. on Advanced Intelligent Mechatronics*, pages 508–513, Atlanta, September, 19-23, 1999.
- [pierrot2001] Pierrot F. Manipulateurs complexes: du laboratoire à l’atelier, March, 7, 2001. Habilitation à diriger les recherches.
- [pierrot2001-1] Pierrot F. and others . H4 parallel robot: modeling, design and preliminary experiments. In *IEEE Int. Conf. on Robotics and Automation*, pages 3256–3261, Seoul, May, 23-25, 2001.
- [pierrot2002] Pierrot F. Parallel mechanisms and redundancy. In *1st Int. Colloquium, Collaborative Research Centre 562*, pages 261–277, Braunschweig, May, 29-30, 2002.
- [pierrot2005] Pierrot F. and others . Lower mobility PKM for large tilting angles. In *2nd Int. Colloquium, Collaborative Research Centre 562*, pages 253–268, Braunschweig, May, 10-11, 2005.
- [pierrot2006] Pierrot F. and others . Four-dof PKM with articulated traveling plate. In *5th Chemnitzer Parallelkinematik Seminar*, pages 677–693, Chemnitz, April, 25-26, 2006.
- [pierrot2009] Pierrot F. and others . Above 40g acceleration for pick-and-place with a new 2-dof PKM. In *IEEE Int. Conf. on Robotics and Automation*, pages 1794–1800, Kobe, May, 14-16, 2009.
- [pierrot2009-1] Pierrot F. and others . Optimal Design of a 4-DOF Parallel Manipulator: From Academia to Industry. *IEEE Trans. on Robotics*, 25(2):213–224, 2009.
- [pietrus92] Pietrus A. *Étude numérique des systèmes triangulaires d’équations algébriques: Application à la robotique*. Ph.D. Thesis, Université de Poitiers, Poitiers, December, 3, 1992. **Keywords:** forward kinematics.
- [pigani2014] Pigani I. and Gallina P. Cable-direct-driven-robot (cddr) with a 3-link passive serial support. *Robotics and Computer-Integrated Manufacturing*, 30(3):265–276, June 2014.
- [pile2014] Pile J. and Simaan N. Modeling, design, and evaluation of a parallel robot for cochlear implant surgery. *IEEE/ASME Trans. on Mechatronics*, 19(6):1746–1755, December 2014.
- [ping-lang2013] Ping-Lang Y. and Hung S.S. Cooperative force control of a hybrid cartesian parallel manipulator for bone slicing. *Robotica*, 31(2):183–191, March 2013.

- [ping-lang2019] Ping-Lang Y. and others . Optimization design for a compact redundant hybrid parallel kinematic machine. *Robotics and Computer-Integrated Manufacturing*, 58:172–180, 2019.
- [pinto2010] Pinto C. and others . A methodology for static stiffness mapping in lower mobility parallel manipulators with decoupled motions. *Robotica*, 28(5):719–735, October 2010.
- [piras2005] Piras G., Cleghorn W.L., and Mills J.K. Dynamic finite-element analysis of a planar high-speed, high-precision parallel manipulator with flexible links. *Mechanism and Machine Theory*, 40(7):849–862, July 2005.
- [pisla2008] Pisla D., Plitea N., and Vaida C. Kinematic modeling and workspace generation for a new parallel robot used in minimally invasive surgery. In *ARK*, pages 459–467, Batz/mer, June, 23-26, 2008.
- [pisla2008-1] Pisla D. and Itul T. The influence of motion mode and friction on the dynamics of a parallel robot used for orientation applications. In *2nd European Conf. on Mechanism Science (Eucomes)*, Cassino, September, 17-20, 2008.
- [pisla2009] Pisla D. and others . Kinematical analysis and design of a new surgical parallel robot. In *Computational Kinematics*, Duisburg, May, 6-8, 2009.
- [pisla2010] Pisla D. and others . Kinematic design of a 5-dof parallel robot used in a minimally invasive surgery. In *ARK*, pages 99–106, Piran, June 28- July 1, 2010.
- [pisla2010-1] Pisla D. and others . On the dynamics of a 5 dof parallel hybrid robot used in minimally invasive surgery. In *3rd European Conf. on Mechanism Science (Eucomes)*, pages 691–699, Cluj-Napoca, September, 14-17, 2010.
- [pisla2012] Pisla D. and others . Kinematic modelling of a 5-dof hybrid parallel robot for laparoscopic surgery. *Robotica*, 30(7):1085–1107, December 2012.
- [pisla2013] Pisla D. and others . An active hybrid parallel robot for minimally invasive surgery. *Robotics and Computer-Integrated Manufacturing*, 29(1):203–221, February 2013.
- [pittens93] Pittens K.H. and Podhorodeski R.P. A family of Stewart platforms with optimal dexterity. *J. of Robotic Systems*, 10(4):463–479, June 1993.
- [pittiglio2018] Pittiglio G. and others . Available wrench set for planar mobile cable-driven parallel robots. In *IEEE Int. Conf. on Robotics and Automation*, Brisbane, May, 21-25, 2018.
- [platis2016] Platis A. and others . Isotropic design of the spherical wrist of a cable-driven parallel robot. In *ARK*, Grasse, June, 27-30, 2016.
- [plitea2008] Plitea N. and others . Dynamic modelling of a parallel robot used in minimally invasive surgery. In *2nd European Conf. on Mechanism Science (Eucomes)*, Cassino, September, 17-20, 2008.
- [plitea2013] Plitea N. and others . Structural design and kinematics of a new parallel reconfigurable robot. *Robotics and Computer-Integrated Manufacturing*, 29(1):219–235, February 2013.
- [plitea2015] Plitea N., Szilaghyi S., and Pisla D. Kinematic analysis of a new 5-dof modular parallel robot for brachytherapy. *Robotics and Computer-Integrated Manufacturing*, 31:70–80, February 2015.
- [plooi2018] Plooi M. and others . Design of RYSEN: an intrinsically safe and low-power three-dimensional overground body weight support. *IEEE Robotics and Automation Letters*, 3(3), July 2018.
- [podhorodeski92] Podhorodeski R. Three branch hybrid-chain manipulators. In *ARK*, pages 150–155, Ferrare, September, 7-9, 1992.
- [podhorodeski92-1] Podhorodeski R. and Pittens K.H. Three branch hybrid-chain manipulators: design consideration. In *ISRAM*, pages 351–356, Santa-Fe, November, 11-13, 1992.
- [podhorodeski92-2] Podhorodeski R. and Pittens K.H. A class of hybrid-chain manipulators based on kinematically simple branches. In *22nd Biennial Mechanisms Conf.*, pages 59–64, Scottsdale, September, 13-16, 1992.
- [poduraev2006] Poduraev J., Ihlenfeldt S., and Loginov A. Development of a control approach for PKMs with scissor kinematics. In *5th Chemnitzer Parallelkinematik Seminar*, pages 175–192, Chemnitz, April, 25-26, 2006.

- [poignet2003] Poignet P., Ramdani N., and Vivas O.A. Ellipsoidal estimation of parallel robot dynamic parameters. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 3300–3305, Las Vegas, October, 27–31, 2003.
- [pollard42] Pollard W.L.V. Position controlling apparatus, June, 16, 1942. United States Patent n° 2,286,571. **Keywords:** mechanical architecture, 3 dof robot, 4 dof robot, patent.
- [pond2007] Pond G. and Carretero J.A. Quantitative dexterous workspace comparison of parallel manipulators. *Mechanism and Machine Theory*, 42(10):1388–1400, October 2007.
- [pond2008] Pond G. and Carretero J.A. *Parallel manipulators, New Developments*, chapter Quantitative dexterous workspace comparison of serial and parallel planar mechanism, pages 199–212. ITECH, April 2008. **Keywords:** planar robot, workspace, isotropy.
- [pond2009] Pond G. and Carretero J.A. Architecture optimisation of three 3 – *PRS* variants for parallel kinematic machining. *Robotics and Computer-Integrated Manufacturing*, 25(1):64–72, February 2009.
- [pooran89] Pooran F.J. *Dynamics and control of robot manipulators with closed-kinematic chain mechanism*. Ph.D. Thesis, The Catholic University of America, Washington D.C., 1989. **Keywords:** dynamics, workspace, maximal workspace.
- [porta2002] Porta J.M. and others . Solving multi-loop linkages by iterating 2D clippings. In *ARK*, pages 255–264, Caldes de Malavalla, June 29– July 2, 2002.
- [porta2003] Porta J.M. and others . A branch-and-prune algorithm for solving systems of distance constraints. In *IEEE Int. Conf. on Robotics and Automation*, Taipei, September, 14–19, 2003.
- [porta2017] Porta J.M. and Thomas F. Closed form position analysis of variable geometry truss. *Mechanism and Machine Theory*, 109:14–21, 2017.
- [porta2018] Porta J.M. and Thomas F. The forward kinematics of doubly-planar Gough-Stewart platforms and the position analysis of strips of tetrahedra. In *ARK*, Bologna, July, 1–5, 2018.
- [portman2000] Portman V.T., Sandler B-Z, and Zahavi E. Rigid 6x6 parallel platform for precision 3D micromanipulation: theory and design application. *IEEE Trans. on Robotics and Automation*, 16(6):629–643, December 2000.
- [portman2002] Portman V.T. and Sandler B-Z. Tripod robot with cylindrically actuated limbs: structure and kinematics. *Mechanism and Machine Theory*, 37(12):1447–1463, December 2002.
- [portman2012] Portman V.T., Chapsky V.S., and Shneor Y. Workspace of parallel kinematics machines with minimum stiffness limits: Collinear stiffness value based approach. *Mechanism and Machine Theory*, 49, 2012.
- [portman2014] Portman V.T., Chapsky V.S., and Shneor Y. Evaluation and optimization of dynamic stiffness values of the PKMs: Collinear stiffness value approach. *Mechanism and Machine Theory*, 74:216–244, April 2014.
- [pott-pp2011] Pott P.P. and others . Inverse dynamic model and a control application of a novel 6-dof hybrid kinematics manipulator. *J. of Intelligent and Robotic Systems*, 63(1):3–23, July 2011.
- [pott2004] Pott A., Franitza D., and Hiller M. Orientation workspace verification for parallel kinematic machines with constant legs length. In *Mechatronics and Robotics Conf.*, Aachen, September, 13–15, 2004.
- [pott2004-1] Pott A. and Hiller M. A new approach to error analysis in parallel kinematic structures. In *ARK*, Sestri-Levante, June 28– July 1, 2004.
- [pott2006] Pott A., Boye T., and Hiller M. Design and optimization of parallel kinematic machines under process requirements. In *5th Chemnitzer Parallelkinematik Seminar*, pages 193–212, Chemnitz, April, 25–26, 2006.
- [pott2006-1] Pott A. and Hiller M. A framework for the analysis, synthesis and optimization of parallel kinematic machines. In *ARK*, pages 103–112, Ljubljana, June, 26–29, 2006.
- [pott2007] Pott A. Analyse und synthese von werkzeugmaschinen mit paralleler kinematik. Research Report 409, Fortschritt-Berichte VDI, Düsseldorf, 2007.

- [pott2008] Pott A. and Hiller M. *Parallel manipulators, Towards new applications*, chapter Kinematic modeling, linearization and first order analysis, pages 155–174. ITECH, April 2008. **Keywords:** planar robot, redundant robot, statics, performance analysis.
- [pott2009] Pott A., Bruckmann T., and Mikelsons L. Closed-form force distribution for parallel wire robots. In *Computational Kinematics*, pages 25–34, Duisburg, May, 6-8, 2009.
- [pott2010] Pott A. An algorithm for real-time forward kinematics of cable-driven parallel robots. In *ARK*, pages 529–538, Piran, June 28- July 1, 2010.
- [pott2010-1] Pott A., Meyer C., and Verl A. Large-scale assembly of solar power plants with parallel cable robots. In *ROBOTIK 2010*, 2010.
- [pott2012] Pott A. Influence of pulley kinematics on cable-driven parallel robots. In *ARK*, pages 197–204, Innsbruck, June, 25-28, 2012.
- [pott2012-1] Pott A. and others . IPAnema: a family of cable-driven parallel robots for industrial applications. In *1st Int. Conf. on cable-driven parallel robots (CableCon)*, pages 119–134, Stuttgart, September, 3-4, 2012.
- [pott2013] Pott A. and others . Cable-driven parallel robots for industrial applications: the IPAnema system family. In *ISR*, 2013.
- [pott2014] Pott A. On the limitations on the lower and upper tensions for cable-driven parallel robots. In *ARK*, pages 243–251, Ljubljana, June 29- July 3, 2014.
- [pott2015] Pott A. and Schmidt V. On the forward kinematics of cable-driven parallel robots. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Hamburg, Germany, September 28- October 2, 2015.
- [pott2016] Pott A. and Kraus W. Determination of the wrench-closure translational workspace in closed-form for cable-driven parallel robots. In *IEEE Int. Conf. on Robotics and Automation*, Stockholm, May, 16-20, 2016.
- [pott2017] Pott A. Determination of the cable span and cable deflection of cable-driven parallel robots. In *3rd Int. Conf. on cable-driven parallel robots (CableCon)*, Québec, 2017.
- [pott2018] Pott A. *Cable-Driven Parallel Robots. Theory and Application*. Springer, 2018. **Keywords:** wire robot, state of the art.
- [pott2018-1] Pott A. and Tempel P. A unified approach to forward kinematics for cable-driven parallel robots based on energy. In *ARK*, Bologna, July, 1-5, 2018.
- [pottmann98] Pottmann H., Peternell M., and Ravani B. Approximation in line space. Applications in robot kinematics. In *ARK*, pages 403–412, Strobl, June 29- July 4, 1998.
- [potton83] Potton S.L. Gec advanced device for assembly. *Manufacturing systems*, 13(2):130–144, 1983.
- [potton83-1] Potton S.L. Gec advanced device for assembly. In *Proc. of the CIRP Conf. on Assembly Automation*, pages 126–128, June, 20-22, 1983.
- [powell82] Powell I.L. The kinematic analysis and simulation of the parallel topology manipulator. *The Marconi Review*, XLV(226):121–138, Third Quarter 1982.
- [prajapati2020] Prajapati P., Parekh S., and Vashista V. On the human control of a multiple quadcopters with a cable-suspended payload system. In *IEEE Int. Conf. on Robotics and Automation*, Paris, May 31- August 31, 2020.
- [prause2015] Prause I. and Burkhard C. Dynamic modeling of the RPC-manipulator with prismatic or revolute joint actuation for different frame configurations. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 4105–4112, Hamburg, Germany, September 28- October 2, 2015.
- [preault2019] Préault C. and others . Optimal design and evaluation of a dexterous 4 dofs haptic device based on Delta architecture. *Robotica*, 37:1267–1288, 2019.
- [preda2015] Preda N. and others. Motion planning for a multi-arm surgical robot using both sampling-based algorithms and motion primitives. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 1422–1427, Hamburg, Germany, September 28- October 2, 2015.

- [prieto2013] Prieto P.J. and others . Proxy-based sliding mode control on platform of 3 degree of freedom (3-dof). *Advanced Robotics*, 27(10):773–784, 2013.
- [pritschow2002] Pritschow G., Eppler C., and Lehner W-D. Highly dynamic drives for parallel kinematic machines with constant arm length. In *1st Int. Colloquium, Collaborative Research Centre 562*, pages 199–211, Braunschweig, May, 29-30, 2002.
- [pritschow2002-1] Pritschow G., Eppler C., and Garber T. Influence of the dynamic stiffness on the accuracy of PKM. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 313–333, Chemnitz, April, 23-25, 2002.
- [pugazhenti-2002] S. Pugazhenti and others . Optimal trajectory planning for a hexapod machine-tool. *Proc. Instn Mech Engrs, Part C: J. Mechanical Engineering Science*, 216(12):1247–1257, December 2002.
- [pugliti2013] Pugliti L.J. and others . Design and kinematic analysis of 3-PSS-1S wrist for needle insertion guidance. *Robotics and Autonomous Systems*, 61(5):417–427, May 2013.
- [pulloquinga2021] Pulloquinga J.L. Experimental analysis of Type II singularities and assembly change points in a  $3UPS + RPU$  parallel robot. *Mechanism and Machine Theory*, 158, 2021.
- [pulloquinga2022] Pulloquinga J.L. and others . Trajectory planner for type II singularities avoidance based on output twist screws. In *ARK*, Bilbao, June, 26-30, 2022.
- [pusey2003] Pusey J. and others . Design and workspace analysis of a 6-6 cable-suspended parallel robot. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Las Vegas, October 2003.
- [pusey2004] Pusey J. and others . Design and workspace analysis of a 6-6 cable-suspended parallel robot. *Mechanism and Machine Theory*, 139(7):761–778, July 2004.
- [qazani2015] Qazani M.R.C. and others . Kinematics analysis and workspace determination of hexarot-a novel 6-dof parallel manipulator with a rotation-symmetric arm system. *Robotica*, 33(8):1686–1703, October 2015.
- [qazani2020] Qazani M.R.C. and others . A new Gantry-Tau-based mechanism using spherical wrist and model predictive control-based motion cueing algorithm. *Robotica*, 38:1359–1380, 2020.
- [qi-kq-2017] Qi K-Q. and others . A novel 2-dof compound compliant parallel guiding mechanism. *Mechanism and Machine Theory*, 117:21–34, 2017.
- [qi-r-2019] Qi R. and others . Decoupled modeling and model predictive control of a hybrid cable-driven robot (HCDR). *Robotics and Autonomous Systems*, 118, 2019.
- [qi-y-2018] Qi Y. and Song Y. Coupled kinematic and dynamic analysis of parallel mechanism flying in space. *Mechanism and Machine Theory*, 124:104–117, 2018.
- [qi2007] Qi Z. and McInroy J.E. Nonlinear image based visual servoing using parallel robots. In *IEEE Int. Conf. on Robotics and Automation*, pages 1715–1720, Roma, April, 10-14, 2007.
- [qi2007-1] Qi Z., McInroy J.E., and Jafari F. Trajectory tracking with parallel robots using low chattering fuzzy sliding mode controller. *J. of Intelligent and Robotic Systems*, 48(3):333–356, March 2007.
- [qi2008] Qi Z. and McInroy J.E. Improved image based visual servoing with parallel robot. *J. of Intelligent and Robotic Systems*, 53(4):359–379, December 2008.
- [qian2018] Qian S, Bao K., Zi B., and Wang N. Kinematic calibration of a cable-driven parallel robot for 3D printing. *Sensors*, 2018.
- [qian2018-1] Qian S and others . A review on cable-driven parallel robots. *Chinese J. of Mechanical Engineering*, pages 31–66, 2018.
- [qian2018-2] Qian S and others . Development of modular cable-driven parallel robotic systems. *IEEE Access*, 2018.
- [qian2019] Qian S, Bao K., Zi B., and Zhu W. Dynamic trajectory planning for a 3-dof cable-driven parallel robot using quintic B-splines. *ASME J. of Mechanical Design*, pages 1–10, 2019.
- [qin-y-2013] Qin Y. and others . Modeling and anlysis of a rigid-compliant parallel mechanism. *Robotics and Computer-Integrated Manufacturing*, 29(4):33–40, August 2013.



- [qin2010] Qin Z., Baron L., and Birglen L. A new approach to the dynamic parameter identification of robotic manipulators. *Robotica*, 28(4):539–547, July 2010.
- [qu2011] Qu H., Fang Y., and Guo S. A new method for isotropic analysis of limited parallel manipulators with terminal constraints. *Robotica*, 29(4):563–569, July 2011.
- [qu2017] Qu H., Guo S., and Zhang Y. A novel relative degree-of-freedom criterion for a class of parallel manipulators with kinematic redundancy and its applications. *Proc. Instn Mech Engrs, Part C: J. Mechanical Engineering Science*, 231(22):4227–4240, 2017.
- [qu2018] Qu H., Zhang C., and S. Guo. Structural synthesis of a class of kinematically redundant parallel manipulators based on modified G–K criterion and RDOF criterion. *Mechanism and Machine Theory*, 130:47–70, 2018.
- [raabe2012] Raabe D., Dogramadzi S., and Atkins R. Semi-automatic percutaneous reduction of intra-articular joint fractures, an initial analysis. In *IEEE Int. Conf. on Robotics and Automation*, pages 2879–2884, Saint Paul, May, 14-18, 2012.
- [rabenoroso2015] Rabenoroso K. and others . Squipabot: a mesoscale parallel robot for a laser phonosurgery. *International Journal of Optomechatronics*, 9(4):310–324, 2015.
- [rachedi2015] Rachedi M. and Hermici M., B. and Bouri. Design of an  $H_\infty$  controller for the Delta robot: experimental results. *Advanced Robotics*, 29(18):1165–1181, 2015.
- [rachedi2015-1] Rachedi M., Bouri M., and Hermici B. Robust control of a parallel robot. In *International Conference on Advanced Robotics (ICAR)*, 2015.
- [racila2007] Racila L. and Dahan M. Bricard mechanism used as translator. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [rad-sa2020] Rad S.A. and others . Experimental study on robust adaptive control with insufficient excitation of a 3-DOF spherical parallel robot for stabilization purposes. *Mechanism and Machine Theory*, 153, 2020.
- [rad2016] Rad F.P. and others . Analytical compliance analysis and finite element verification of spherical flexure hinges for spatial compliant mechanisms. *Mechanism and Machine Theory*, 101:168–180, 2016.
- [radermacher2002] Radermacher K. and others . Computer- und Robotertechnik für die bildgeführte Orthopädische Chirurgie. *Automatisierungstechnik*, 50:317–325, 2002.
- [raghavan91] Raghavan M. The Stewart platform of general geometry has 40 configurations. In *ASME Design and Automation Conf.*, volume 32-2, pages 397–402, Chicago, September, 22-25, 1991.
- [raghavan93] Raghavan M. The Stewart platform of general geometry has 40 configurations. *ASME J. of Mechanical Design*, 115(2):277–282, 1993.
- [raghavan95] Raghavan M. and Roth B. Solving polynomial systems for the the kinematic analysis of mechanisms and robot manipulators. *ASME J. of Mechanical Design*, 117(2):71–79, June 1995.
- [rahimi99] Rahimi M.A., Hemami H., and Zheng Y.F. Experimental study of a cable-driven suspended platform. In *IEEE Int. Conf. on Robotics and Automation*, pages 1758–1763, Detroit, May, 10-15, 1999.
- [rahman2012] Rahman T. and others . Kinematic synthesis of nonspherical orientation manipulators: maximization of dexterous regular workspace by multiple response optimization. *ASME J. of Mechanical Design*, 134, July 2012.
- [rahman2017] Rahman T. and others . Application of response surface methodology for performing kinematic calibration of a 3 – PSS/S parallel kinematic mechanism. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Vancouver, September, 24-28, 2017.
- [rahmani2020] Rahmani A. and Faroughi S. Application of a novel elimination algorithm with developed continuation method for nonlinear forward kinematics solution of modular hybrid manipulators. *Robotica*, 38:1963–1983, 2020.
- [rahul2019] Rahul K., Raheman H., and Paradkar V. Design and development of a 5R 2DOF parallel robot arm for handling paper pot seedlings in a vegetable transplanter. *Computers and Electronics in Agriculture*, 166, 2019.

- [rakhodaei2016] Rakhodaei h. and others . Path planning of the hybrid parallel robot for ankle rehabilitation. *Robotica*, 34(1):175–184, January 2016.
- [rakotomanga2008] Rakotomanga N., Chablat D., and Caro S. Kinetostatic performance of a planar parallel mechanism with variable actuation. In *ARK*, pages 311–320, Batz/mer, June, 23-26, 2008.
- [ramachandran92] Ramachandran S. and others . A finite element approach to the design and dynamic analysis of platform type manipulators. *Finite elements in Analysis and Design*, 10(4):335–350, 1992.
- [ramadour2014] Ramadour R., Chaumette F., and Merlet J-P. Grasping objects with a cable-driven parallel robot designed for transfer operation by visual servoing. In *IEEE Int. Conf. on Robotics and Automation*, pages 4463–4468, Hong-Kong, May 31- June 7, 2014.
- [ramadour2014-1] Ramadour R. and Merlet J-P. Computing safe trajectories for an assistive cable-driven parallel robot by selecting the cables under tension and using interval analysis. In *IEEE/ASME Int. Conf. on Advanced Intelligent Mechatronics*, pages 1349–1354, Besancon, July, 8-11, 2014.
- [ramdani2008] Ramdani N., Gouttefarde M., Pierrot F., and Merlet J-P. First results on the design of high speed parallel robots in presence of uncertainty. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 2410–2415, Nice, France, September, 22-26, 2008.
- [ramesh2022] Ramesh S. and others . Forward kinematics of a novel 6-dof spatial hybrid manipulator. In *ARK*, Bilbao, June, 26-30, 2022.
- [ramrakahyani2004] Ramrakahyani D.S. and Lesieutre G.A. Aircraft structure morphing using tendon actuated compliant cellular trusses. In *45th AIAA Structures, Structural & Materials Conf.*, Palm Springs, April, 19-22, 2004.
- [ranganath2004] Ranganath R. and others . A force-torque sensor based on a Stewart platform in a near-singular configuration. *Mechanism and Machine Theory*, 39(9):971–998, September 2004.
- [rao-abk-2003] Rao A.B.K and others . Workspace and dexterity analyses of Hexaslide machine-tool. In *IEEE Int. Conf. on Robotics and Automation*, pages 4104–4109, Taipei, September, 14-19, 2003.
- [rao-abk-2006] Rao A.B.K and others . Dynamics modelling of Hexaslides using the decoupled natural orthogonal complement matrices. *Multibody System Dynamics*, 15:159–180, 2006.
- [rao-nm-2006] Rao N.M. and Rao K.M. Multi-position dimensional synthesis of a spatial 3-RPS parallel manipulator. *ASME J. of Mechanical Design*, 128(4):815–819, July 2006.
- [rao95] Rao A.C. Topological characteristics of linkage mechanisms with particular reference to platform type robots. *Mechanism and Machine Theory*, 30(1):33–42, January 1995.
- [rao97] Rao A.C. Platform-type planar robots: topology-based selection for rigidity and workspace. *J. of Robotic Systems*, 14(5):355–364, 1997.
- [rao97-1] Rao A.C. and Jagadeesh A. Structure-based dynamic characteristics of planar linkages including platform-type robots. *J. of Robotic Systems*, 14(8):621–629, 1997.
- [rao2004] Rao A.C. Parallelism in planar kinematic chains (manipulators). *Mechanism and Machine Theory*, 39(10):1111–1122, October 2004.
- [rao2006] Rao A.C. Parallelism in planar manipulators: a measure. *ASME J. of Mechanical Design*, 128(1):66–68, January 2006.
- [raoofian2017] Raoofian A., Kamali A., and Taghvaeipour A. Forward dynamic analysis of parallel robots using modified decoupled natural orthogonal complement method. *Mechanism and Machine Theory*, 115:197–217, 2017.
- [raparelli2002] Raparelli T. and others . Design of a parallel robot actuated by shape memory alloy wires. *Materials Transactions*, 43(5):1015–1022, 2002.
- [raparelli2002-1] Raparelli T. and others . A robot actuated by shape memory alloy wires. In *Int. Symp. on Industrial Electronics (ISIE)*, pages 420–423, L’Aquila, July, 8-11, 2002.

- [raparelli2008] Raparelli T. and others . Mechanical design of a 3-dof parallel robot actuated by smart wires. In *2nd European Conf. on Mechanism Science (Eucomes)*, Cassino, September, 17-20, 2008.
- [rasheed2017] Rasheed T. and others . Tension distribution algorithm for planar mobile cable-driven parallel robots. In *3rd Int. Conf. on cable-driven parallel robots (CableCon)*, Québec, 2017.
- [rasheed2018] Rasheed T. and others . Available wrench set for planar mobile cable-driven parallel robots. In *IEEE Int. Conf. on Robotics and Automation*, pages 962–967, Brisbane, May, 21-25, 2018.
- [rasheed2018-1] Rasheed T. and others . Kinematic modeling and twist feasibility of mobile cable-driven parallel robots. In *ARK*, Bologna, July, 1-5, 2018.
- [rasheed2019] Rasheed T. and others . Optimization based trajectory planning of mobile cable-driven parallel robots. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Macau, November, 4-8, 2019.
- [rasheed2019-phd] Rasheed T. *Collaborative mobile cable-driven parallel robots*. Ph.D. Thesis, Ecole Centrale de Nantes, Nantes, 2019. **Keywords:** wire robot, applications.
- [rasheed2020] Rasheed T., Long P., and Caro S. Wrench-feasible workspace of mobile cable-driven parallel robots. *J. of Mechanisms and Robotics*, 12(3), 2020.
- [rastegar2005] Rastegar J., Yuan L., and Zhang J. Smart actuator displacement transmissibility in serial and parallel robot manipulators for performance enhancement. *ASME J. of Mechanical Design*, 127(4):589–595, July 2005.
- [rath2012] Rath G. and Zaev E. Cable driven robot for camera motion with six degrees of freedom. In *Mediterranean Conference on Embedded Computing*, Bar, 2012.
- [rauf2001] Rauf A. and Ryu J. Fully autonomous calibration of parallel manipulators by imposing position constraint. In *IEEE Int. Conf. on Robotics and Automation*, pages 2389–2394, Seoul, May, 23-25, 2001.
- [rauter2010] Rauter G. and others . A tendon-based parallel robot applied to motor learning in sports. In *Int. Conf. on Biomedical Robotics and Biomechatronics*, Tokyo, September, 26-29, 2010.
- [rebman88] Rebman J. Object manipulator, August, 23, 1988. United States Patent n° 4,765,795 Lord Corporation, Eric, Pa. **Keywords:** mechanical architecture, 4 dof robot, patent, flexible robot.
- [reboulet85] Reboulet C. and Robert A. Hybrid control of a manipulator with an active compliant wrist. In *3rd ISRR*, pages 76–80, Gouvieux, France, October, 7-11, 1985.
- [reboulet88] Reboulet C. *Technique de la Robotique*. Hermès, Paris, 1988. **Keywords:** state of the art.
- [reboulet90] Reboulet C. and Pigeyre R. Hybrid control of a 6 d.o.f. in parallel actuated micro-macro manipulator mounted on a Scara robot. In *ISRAM*, volume 3, pages 293–298, Burnaby, July, 18-20, 1990. ASME Press Series.
- [reboulet90-1] Reboulet C. and others . Rapport d’avancement projet VAP, thème 7, phase 2. Research Report 7716-c, CNES/DERA, September 1990.
- [reboulet90-2] Reboulet C. Les nouvelles architectures de robots: performances et perspectives liées aux robots parallèles. In *8ieme journées Robotique et Productique du CETIM*, St Etienne, 1990.
- [reboulet91] Reboulet C. and others . Rapport d’avancement projet VAP, thème 7, phase 3. Research Report 7743, CNES/DERA, January 1991.
- [reboulet91-1] Reboulet C. and Berthomieu T. Dynamic model of a six degree of freedom parallel manipulator. In *ICAR*, pages 1153–1157, Pise, June, 19-22, 1991.
- [reboulet91-2] Reboulet C. and Lambert C. Les robots manipulateurs à structure parallèle, 1991. CERT-DERA Publication 1991. **Keywords:** state of the art.
- [reboulet92] Reboulet C., Lambert C., and Nombail N. A parallel redundant manipulator: SPEED-R-MAN and its control. In *ISRAM*, pages 285–291, Santa-Fe, November, 11-13, 1992.
- [reboulet92-1] Reboulet C. and Pigeyre R. Hybrid control of a 6 d.o.f. in parallel actuated micro-manipulator mounted on a SCARA robot. *Int. J. of Robotics and Automation*, 7(1):10–14, 1992.

- [reboulet96] Reboulet C. and Leguay S. The interest of redundancy for the design of a spherical parallel manipulator. In *ARK*, pages 369–378, Portoroz-Bernadin, June, 22-26, 1996.
- [reboulet96-1] Reboulet C. Parallel-structure manipulator device for displacing and orienting an object in a cylindrical workspace, July, 23, 1996. United States Patent n° 5,539,291 ONERA. **Keywords:** mechanical architecture, patent.
- [rees-jones79] Rees Jones J. Cross-coordinate control of a robot manipulator. In *Int. Workshop on Nuclear Robotics Technologies and Applications: Present and Future*, pages 1–10, University of Lancaster, -Juillet June, 26-1, 1979.
- [refaat2006] S. Refaat and others . Asymmetrical three-dof rotational-translational parallel-kinematic mechanism based on Lie group theory. *European Journal of Mechanics A/Solids*, 25(3):550–558, March - April , 2004.
- [refaat2007] S. Refaat and others . Two-mode overconstrained three-dofs rotational-translational linear-mode-based parallel-kinematics mechanism for machine tool applications. *Robotica*, 25(4):461–466, July 2007.
- [regelbrugge99] Regelbrugge M.E. Some aspect of precision positionning using hexapods. In *9th Int. Conf. on adaptive Structures and Technologies*, pages 283–293, 1999.
- [rehsteiner99] Rehsteiner F. and others . Putting parallel kinematics machines (PKM) to productive work. *Annals of the CIRP*, 48(1):345–350, 1999.
- [reichert2014] Reichert C., Müller K., and Bruckmann T. Robust internal force-based impedance control for cable-driven parallel robots. In *2nd Int. Conf. on cable-driven parallel robots (CableCon)*, pages 131–143, Duisburg, August, 24-27, 2014.
- [reichert2016] Reichert C. and others . Sensitivity analysis of the design parameters for the calibration of cable-driven parallel robots. *Proc. Appl. Math. Mech. (PAMM)*, pages 859–860, 2016.
- [reinholdt87] Reinholdt C.F. and Gokhale D. Design and analysis of variable geometry truss robots. In *9th Annual Conf. on Applied Mechanisms*, pages 1–5, Oklahoma State University, 1987.
- [ren2005] Ren L., Mills J.K., and Sun D. Controller design applied to planar parallel manipulators for trajectory tracking control. In *IEEE Int. Conf. on Robotics and Automation*, pages 980–985, Barcelona, April, 19-22, 2005.
- [ren2006] Ren L., Mills J.K., and Sun D. Convex synchronized control for a 3-dof planar parallel manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 1129–1134, Orlando, May, 16-18, 2006.
- [renaud2003] Renaud P. and others . Vision-based kinematic calibration of a H4 parallel mechanism. In *IEEE Int. Conf. on Robotics and Automation*, pages 1191–1196, Taipei, September, 14-19, 2003.
- [renaud2003-1] Renaud P. and others . Optimal pose selection for vision-based kinematic calibration of parallel mechanisms. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Las Vegas, October 2003.
- [renaud2003-2] Renaud P. *Apport de la vision pour l'identification géométrique de mécanismes parallèles*. Ph.D. Thesis, Université Blaise Pascal, Clermont-Ferrand, 2003. **Keywords:** calibration.
- [renaud2004] Renaud P., Andreff N., Pierrot F., and Martinet P. Combining end-effector and legs observation for kinematic calibration of parallel mechanisms. In *IEEE Int. Conf. on Robotics and Automation*, pages 4116–4121, New Orleans, April, 28-30, 2004.
- [renaud2005] Renaud P. and others . Kinematic calibration of parallel mechanisms: a novel approach using legs observation. *IEEE Trans. on Robotics*, 21(4):529–538, August 2005.
- [renaud2006] Renaud P. and others . Kinematic and dynamic identification of parallel mechanisms. *Control Eng. Practice*, 14:1099–1109, 2006.
- [reveles-r2016] Reveles R.D., Pamanes G.J.A., and Wenger P. Trajectory planning of kinematically redundant parallel manipulators by using multiple working modes. *Mechanism and Machine Theory*, 98:216–230, April 2016.
- [rey1999] Rey L. and Clavel R. The Delta parallel robot. In *Parallel Kinematic Machines*, pages 401–417, 1999.

- [rezaei2012] Rezaei A., Akbarzadeh A., and Akbarzah-T M-R. An investigation on stiffness of a 3-PSP spatial parallel mechanism with flexible moving platform using invariant form. *Mechanism and Machine Theory*, 51:185–216, 2012.
- [rezaei2013] Rezaei A. and Akbarzadeh A. Position and stiffness analysis of a new asymmetric 2PRR–PPR parallel CNC machine. *Advanced Robotics*, 27(2):133–145, 2013.
- [rezaei2018] Rezaei A. and Akbarzadeh A. Influence of joints flexibility on overall stiffness of a 3 $\underline{P}$ RU $\underline{P}$  compliant parallel manipulator. *Mechanism and Machine Theory*, 126:108–140, 2018.
- [rezagi2013] Rezagi A. and others . Position, jacobian and workspace analysis of a 3-PSP spatial parallel manipulator. *Robotics and Computer-Integrated Manufacturing*, 29(1):158–173, February 2013.
- [ribeiro2012] Ribeiro J.F. and others . Robot for wrist rehabilitation. In *4th European Conf. on Mechanism Science (Eucomes)*, pages 451–458, Santander, September, 19-21, 2012.
- [richard2007] Richard P.L., Gosselin C.M., and Kong X. Kinematic analysis and prototyping of a partially decoupled 4-dof 3TR1 parallel manipulator. *ASME J. of Mechanical Design*, 129(7):611–616, June 2007.
- [rico2002] Rico J.M. and Ravani B. Group theory can explain the mobility of paradoxical linkages. In *ARK*, pages 245–254, Caldes de Malavalla, June 29- July 2, 2002.
- [rico2006] Rico J.M. and others . A more general mobility criterion for parallel platforms. *ASME J. of Mechanical Design*, 128(1):207–219, January 2006.
- [rico2007] Rico J.M. and others . Mobility determination of displacement set fully parallel platforms. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [rico2008] Rico J.M. and others . New considerations on the theory of type synthesis of fully parallel platforms. *ASME J. of Mechanical Design*, 130(11):112302–1/9, November 2008.
- [ridgeway96] Ridgeway S.C., Crane C.M., and Duffy J. A forward analysis of two degree of freedom parallel manipulator. In *ARK*, pages 431–440, Portoroz-Bernadin, June, 22-26, 1996.
- [ridgeway2001] Ridgeway S.C. and Crane C.M. Optimized kinematics of a 6-6 parallel mechanism considering position and orientation errors. In *Florida Conf. on Recent Advances in Robotics*, Tallahassee, May, 10-11, 2001.
- [ridgeway2004] Ridgeway S.C. and Crane C.M. Control considerations in the design of a parallel kinematic machine with separate actuation and metrology mechanisms. In *12th Mediterranean Conf. on Control and Automation (MED'04)*, Kusadasi, June 2004.
- [riechel2004] Riechel A.T. and Ebert-Uphoff I. Force-feasible workspace analysis for underconstrained point-mass cable robots. In *IEEE Int. Conf. on Robotics and Automation*, pages 4956–4962, New Orleans, April, 28-30, 2004.
- [riechel2004-1] Riechel A.T. and others . Concept paper: cable-driven robots for use in hazardous environments. In *10th Int. Topical Meeting on Robotics in hazardous environments*, Gainesville, 2004.
- [riehl2009] Riehl N. and others . Effects of non-negligible cable mass on the static behavior of large workspace cable-driven parallel mechanisms. In *IEEE Int. Conf. on Robotics and Automation*, pages 2193–2198, Kobe, May, 14-16, 2009.
- [riehl2010] Riehl N. and others . On the determination of cable characteristics for large dimension cable-driven parallel mechanisms. In *IEEE Int. Conf. on Robotics and Automation*, pages 4709–4714, Anchorage, May, 3-8, 2010.
- [riehl2010-1] Riehl N. and others . On the static workspace of large dimension cable-suspended robots with non negligible cable mass. In *34th Annual Mechanisms and Robotics Conference*, Montréal, August, 15-18, 2010.
- [rivera2014] Rivera J.A. and Kim C.J. Spatial parallel soft robotic architectures. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Chicago, September, 14-18, 2014.
- [rizk2007] Rizk R. and others . A semi-analytical stiffness model of parallel robots from the Isoglide family via the sub-structuring principle. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.

- [roberts98] Roberts R.G., Graham T., and Lippit T. On the inverse kinematics, statics and fault tolerance of cable-suspended robots. *J. of Robotic Systems*, 15(10):581–597, 1998.
- [roberts99] Roberts R.G. Minimal realization of a spatial stiffness matrix with simple springs connected in parallel. *IEEE Trans. on Robotics and Automation*, 15(5):953–958, October 1999.
- [roberts2000] Roberts R.G. Minimal realization of an arbitrary spatial stiffness matrix with a parallel connection of simple and complex springs. *IEEE Trans. on Robotics and Automation*, 16(5):603–608, October 2000.
- [roberts2007] Roberts R.G. and others . Characterizing optimally fault-tolerant manipulators based on relative manipulability indices. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 3925–3930, San Diego, September, 22-26, 2007.
- [roberts2008] Roberts H.G, R.G. amd Yu and Maciejewski A.A. Fundamental limitations on designing optimally fault-tolerant redundant manipulators. *IEEE Trans. on Robotics and Automation*, 24(5), October 2008.
- [roberts97] Roberts R.G., Graham T., and Trumpower J.M. On the inverse kinematics and statics of cable-suspended robots. In *IEEE International Conference on Systems, Man, and Cybernetics*, pages 4291–4296, Orlando, October, 12-15, 1997.
- [robertz2010] Robertz S.G. and others . Precise robot motions using dual motor control. In *IEEE Int. Conf. on Robotics and Automation*, pages 5613–5620, Anchorage, May, 3-8, 2010.
- [robinson2012] Robinson J.D. and Hayes M.J.D. Velocity level kinematic analysis of serial nA chains. In *ARK*, pages 389–396, Innsbruck, June, 25-28, 2012.
- [rocher2017] Rocher X. Arm device, October, 25, 2017. INPI n° EP3233450. **Keywords:** wire robot, applications, patent.
- [rodriguezbarroso2020] Rodriguez-Barroso A. and Saltaren R. Tension planner for cable-driven suspended robots with unbounded upper cable tension and two degrees of redundancy. *Mechanism and Machine Theory*, 144, 2020.
- [rodriguezleal2009] Rodriguez-Leal E., Dai J., and Pennock G.R. Inverse kinematics and motion simulation of a 2-dof parallel manipulator with 3 – PUP legs. In *Computational Kinematics*, pages 85–92, Duisburg, May, 6-8, 2009.
- [rogers72] Rogers W.F. Appolo experience report lunar module landing gear subsystem. Research Report D-6850, NASA, June 1972.
- [rognant2007] Rognant M. and Maurine P. Elasto-geometrical modelling of a pantographic linkage used as coordinate measuring arm for PKM applications. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [rognant2017] Rognant M. and Courteille E. Improvement of cable tension observability through a new cable driving unit design. In *3rd Int. Conf. on cable-driven parallel robots (CableCon)*, Québec, 2017.
- [rojas2010] Rojas N.. and Thomas F. A robust forward kinematics analysis of 3RPR planar platforms. In *ARK*, pages 23–32, Piran, June 28- July 1, 2010.
- [rojas2011] Rojas N.. and Thomas F. The forward kinematics of a 3 – rPr planar robots: a review and a distance-based formulation. *IEEE Trans. on Robotics*, 27(1):143–156, February 2011.
- [rojas2012] Rojas N., Borrás J., and Thomas F. The octahedral manipulator revisited. In *IEEE Int. Conf. on Robotics and Automation*, pages 2293–2298, Saint Paul, May, 14-18, 2012.
- [rojas2013] Rojas N.. and Thomas F. The univariate closure condition of all fully parallel planar robots derived from a single polynomial. *IEEE Trans. on Robotics*, 29(3):758–765, June 2013.
- [rojeski-72-phd] Rojeski P. J. *A systems analysis approach to landing gear design*. Ph.D. Thesis, Cornell University, May 1972. **Keywords:** applications.
- [rolland99] Rolland L.H. The Manta and the Kanuk novel 4-dof parallel mechanisms for industrial handling. In *ASME Int. Mech. Eng. Congress*, Nashville, November, 14-19, 1999.

- [rolland2001] Rolland L. Méthodes algébriques pour la résolution du modèle géométrique de robot parallèle: applications à haute cadence et grande précision. In *Quatrième Journées du Pôle Micro-robotique*, Lyon, July, 4-5, 2001.
- [rolland2001-1] Rolland L. Introduction to algebraic methods for solving the forward kinematics problem of parallel robots applied to high throughput and high accuracy. In *3rd European-Asian Congress on Mechatronics*, Besancon, October, 9-11, 2001.
- [rolland2003-phd] Rolland L. *Outils algébriques pour la résolution de problèmes géométriques et l'analyse de trajectoire de robot parallèles prévus pour des applications à haute cadence et grande précision*. Ph.D. Thesis, Université Henri Poincaré, Nancy, December, 11, 2003. **Keywords:** forward kinematics.
- [rolland2005] Rolland L. Certified solving of the forward kinematics problem with an exact algebraic method for the general parallel manipulator. *Advanced Robotics*, 19(9):995–1025, 2005.
- [rolland2006] Rolland L. Synthesis on forward kinematics problem algebraic modeling for the planar parallel manipulator: displacement-based equation systems. *Advanced Robotics*, 20(9):1035–1065, 2006.
- [rolland2015] Rolland L. *Path Planning Kinematics Simulation of CNC Machine Tools Based on Parallel Manipulators*, pages 147–192. Springer, 2015. **Keywords:** machine-tool, simulation, trajectory planning.
- [rolland2016] Rolland L. and Chandra R.. The forward kinematics of the 6-6 parallel manipulator using an evolutionary algorithm based on generalized generation gap with parent-centric crossover. *Robotica*, 34(1):1–22, 2016.
- [romdhane95] Romdhane L. Orientation workspace of fully parallel mechanisms. *Eur. J. of Mechanics*, 13(4):541–553, 1994.
- [romdhane99] Romdhane L. Design and analysis of a hybrid serial-parallel manipulator. *Mechanism and Machine Theory*, 34(7):1037–1055, October 1999.
- [romdhane2002] Romdhane L., Affi Z., and Fayet M. Design and singularity analysis of a 3-translational-dof in-parallel manipulator. *ASME J. of Mechanical Design*, 124(3):419–426, September 2002.
- [romiti90] Romiti A. and Sorli M. Flexible sensorized micro-assembly by a small parallel manipulator. In *Int. FAMOS Seminar*, pages 181–189, Besançon, September, 18-19, 1990.
- [romiti92] Romiti A. and Sorli M. Force and moment measurement on a robotic assembly hand. *Sensors and Actuators*, A(32):531–538, April 1992.
- [romiti93] Romiti A., Sorli M., and N. Zhmud'. Design and properties of the Turin 6 d.o.f. parallel robot for deburring operations. In *3rd Int. Symp. on Measurement and Control in Robotics*, pages Bm.III–1, Bm.III–6, Turin, September, 21-24, 1993.
- [ronchi2004] Ronchi S. and others . PRP planar parallel mechanism in configurations improving displacement resolution. In *1st Int. Conf. on Positioning Technology*, Hamamatsu, June, 9-11, 2005.
- [rong91] Rong H. and Liang C.G. A direct displacement solution to the triangle-platform 6-SPS parallel manipulator. In *8th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 1237–1239, Prague, August, 26-31, 1991.
- [ronga92] Ronga F. and Vust T. Stewart platforms without computer? In *Conf. Real Analytic and Algebraic Geometry*, pages 197–212, Trento, 1992.
- [rooney83] Rooney J. and Earl C.F. Manipulator postures and kinematics assembly configurations. In *6th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 1014–1020, New Dehli, 1983.
- [ropponen95] Ropponen T. and Arai T. Accuracy analysis of a modified Stewart platform manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 521–525, Nagoya, May, 25-27, 1995.
- [rosati2007] Rosati G., Gallina P., and Masiero S. Design, implementation and clinical test of a wire-based robot for neurorehabilitation. *IEEE Trans. on Neural Systems and Rehabilitation Engineering*, 15(4):560–569, December 2007.

- [rosati2007-1] Rosati G. and others . Trajectory planning of a two-link rehabilitation robot arm. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [roschel98] Röschel O. and Mick S. Characterisation of architecturally shaky platforms. In *ARK*, pages 465–474, Strobl, June 29- July 4, 1998.
- [rose2008] Röse A. and Schlaak H.F. A parallel kinematic mechanism for highly flexible laparoscopic instrument. In *4th European Conf. of the Int. Federation for Medical and Biological Engineering*, pages 903–906, Antwerp, 2008.
- [rose2009] Röse A. and others . A novel piezoelectric driven laparoscopic instrument with multiple degree of freedom parallel kinematic structure. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, St Louis, October, 11-15, 2009.
- [rosenzweig2013] Rosenzweig V., Briot S., and Martinet P. Minimal representation for the control of the adept quattro with rigid platform via leg observation considering a hidden robot model. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 430–435, Tokyo, November, 3-7, 2013.
- [rosenzweig2015-phd] Rosenzweig V. *Sensor-based design and control of high-speed manipulators*. Ph.D. Thesis, Ecole Centrale de Nantes, Nantes, September, 25, 2015. **Keywords:** control.
- [rosheim2003] Rosheim M.E. Robotic manipulator, May, 8, 2003. IPN n° WO 03/037573. **Keywords:** applications, patent, 2 dof robot, wrist.
- [rosyid2018] Rosyid A. and others . Genetic and hybrid algorithms for optimization of non-singular 3PRR planar parallel kinematics mechanism for machining application. *Robotica*, 36:839–864, 2018.
- [rouhani2016] Rouhani E. and Nategh M.J. An elastokinematic solution to the inverse kinematics of microhexapod manipulator with flexure joints of varying rotation center. *Mechanism and Machine Theory*, 97:127–140, 2016.
- [rouillier95] Rouillier F. Real roots counting for some robotics problems. In J-P. Merlet B. Ravani, editor, *Computational Kinematics*, pages 73–82. Kluwer, 1995.
- [rubbert2012-phd] Rubbert L. *Conception de mécanismes compliant pour la robotique chirurgicale*. Ph.D. Thesis, Université de Strasbourg, Strasbourg, 2012. **Keywords:** medical, 3 dof robot, passive compliance, optimal design, piezo-electric.
- [rubbert2012] Rubbert L. and others . A planar compliant mechanism with RRP mobilities based on the singularity analysis of a 3-US parallel mechanism. In *ARK*, pages 381–388, Innsbruck, June, 25-28, 2012.
- [rubbert2014] Rubbert L. and others . Using singularities of parallel manipulators for enhancing the rigid-body replacement design method of compliant mechanisms. *ASME J. of Mechanical Design*, 136, 2014.
- [rubio2000] Rubio A., Avello A., and Florez J. On the use of virtual springs to avoid singularities and workspace boundaries in force-feedback teleoperation. In *IEEE Int. Conf. on Robotics and Automation*, pages 2690–2695, San Francisco, April, 24-28, 2000.
- [ruggiu2009] Ruggiu M. Position analysis, workspace and optimization of a 3 – *PPS* spatial manipulator. *ASME J. of Mechanical Design*, 131(5):051010–1/051010–9, May 2009.
- [ruggiu2010] Ruggiu M. and Carretero J.A. Actuation strategy based on the acceleration method for the 3 – *PRPR* redundant planar parallel manipulator. In *ARK*, pages 91–98, Piran, June 28- July 1, 2010.
- [ruggiu2012] Ruggiu M. and Kong X. Mobility and kinematic analysis of a parallel mechanism with both PPR and planar operation modes. *Mechanism and Machine Theory*, 55:77–90, 2012.
- [ruiz2018] Ruiz A.G. and others . On redundancy resolution and energy consumption of kinematically redundant planar parallel manipulators. *Robotica*, 36:809–821, 2018.
- [ruiztorres2012] Ruiz-Torres M.F., Castillo-Castaneda E., and Briones-Leon J.A. Design and analysis of CICABOT, a novel translation parallel manipulator based on two 5-bars mechanisms. *Robotica*, 30(3):449–456, May 2012.
- [ruscelli2018] Ruscelli F. and others . A fail-safe semi-centralized impedance controller: validation on a parallel kinematics ankle. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Madrid, October, 1-5, 2018.



- [rushton2017] M. Rushton. and Khajepour A. Transverse vibration control in planar cable-driven robotic manipulators. In *3rd Int. Conf. on cable-driven parallel robots (CableCon)*, Québec, 2017.
- [rushton2019] M. Rushton., Jamshidifar H., and Khajepour A. Multiaxis reaction system (MARS) for vibration control of planar cable-driven parallel robots. *IEEE Trans. on Robotics*, 35(4), August 2019.
- [russo2018] Russo M. and others . Kinematic analysis and multi-objective optimization of a 3-UPR parallel mechanism for a robotic leg. *Mechanism and Machine Theory*, 120:192–202, 2018.
- [russo2020] Russo M. and Dong X. A calibration procedure for reconfigurable Gough-Stewart manipulators. *Mechanism and Machine Theory*, 152, 2020.
- [ryu-d-2003] Ryu D. and others . Design of a 6 DOF haptic master for teleoperation of a mobile manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 3243–3248, Taipei, September, 14-19, 2003.
- [ryu98] Ryu R.J. and others . Eclipse: an overactuated parallel mechanism for rapid machining. In *12th RoManSy*, pages 79–86, Paris, July, 6-9, 1998.
- [ryu2001] Ryu J. and Cha J. Optimal architecture design of parallel manipulators for best accuracy. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Maui, Hawaii, October 29- November 3, 2001.
- [ryu2003] Ryu J. and Cha J. Volumetric error analysis and architecture optimization for accuracy of HexaSlide type parallel manipulators. *Mechanism and Machine Theory*, 38(3):227–240, March 2003.
- [saadatzi2011] Saadatzi M.H. and others . On the optimum design of 3 – *RPR* parallel mechanisms. In *19th Iranian Conference on Electrical Engineering*, 2011.
- [saafi2015] H. Saafi., Laribi M.A., and Zeghloul S. Optimal haptic control of a redundant 3-RRR spherical parallel manipulator. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Hamburg, Germany, September 28- October 2, 2015.
- [saafi2015-1] H. Saafi., Laribi M.A., and Zeghloul S. Redundantly actuated 3-RRR spherical parallel manipulator used as a haptic device: improving dexterity and eliminating singularities. *Robotica*, 33(5):1113–1130, June 2015.
- [saafi2015-2] H. Saafi., Laribi M.A., and Zeghloul S. Forward kinematic model improvement of a spherical parallel manipulator using an extra sensor. *Mechanism and Machine Theory*, 91:102–119, 2015.
- [saafi2017] H. Saafi., Laribi M.A., and Zeghloul S. Optimal torque distribution for a redundant 3-RRR spherical parallel manipulator used as a haptical medical device. *Robotics and Autonomous Systems*, 89:40–50, 2017.
- [saafi2020] H. Saafi. and Lamine H. Comparative kinematic analysis and design optimization of redundant and nonredundant planar parallel manipulators intended for haptic use. *Robotica*, 38:1463–1477, 2020.
- [sabahi2014] Sabahi F., Khosravi M.A., and Taghirad H.D. Implementation of analytic iterative redundancy resolution technique on KNTU cable robot. In *2nd RSI/ISM International Conference on Robotics and Mechatronics*, Teheran, October, 15-17, 2014.
- [sabater2004] Sabater J.M., Saltarén R.J., and Aracil R. Design, modelling and implementation of a 6 URS parallel haptic device. *Robotics and Autonomous Systems*, 47(1):1–10, May 2004.
- [sabater2005] Sabater J.M. and others . Magister-P; a 6-URS parallel haptic device with open control architecture. *Robotica*, 23(2):177–187, March 2005.
- [sadjadian2005] Sadjadian H. and Taghirad H.D. Comparison of different methods for computing the forward kinematics of a redundant parallel manipulator. *J. of Intelligent and Robotic Systems*, 44(3), November 2005.
- [sadjadian2006] Sadjadian H. and Taghirad H.D. Kinematics, singularity and stiffness analysis of the hydraulic shoulder: a 3-dof redundant parallel manipulator. *Advanced Robotics*, 20(7):763–781, 2006.
- [saenz2002] Saenz A.J. New automation solutions in aeronautics through parallel kinematic systems. In *3rd Chemnitz Parallelkinematik Seminar*, pages 563–578, Chemnitz, April, 23-25, 2002.

- [saglia2009] Saglia J.A. and others . High performance 2-dof over-actuated parallel mechanism for ankle rehabilitation. In *IEEE Int. Conf. on Robotics and Automation*, pages 2180–2186, Kobe, May, 14-16, 2009.
- [saglia2009-1] Saglia J.A. and others . A high-performance redundantly actuated parallel mechanism for ankle rehabilitation. *Int. J. of Robotics Research*, 28(9):1216–1227, September 2009.
- [saglia2009-2] Saglia J.A. and others . Inverse-kinematics-based control of a redundantly actuated platform for rehabilitation. *Proc. Instn Mech Engrs, Part I: J. of Systems and Control Engineering*, 223(53), 2007.
- [saglia2010] Saglia J.A. and others . Control strategies for ankle rehabilitation using a high performance ankle exerciser. In *IEEE Int. Conf. on Robotics and Automation*, pages 2221–2227, Anchorage, May, 3-8, 2010.
- [sahin2007] Sahin S. and Notash L. Force and stiffness analyses of wireactuated parallel manipulators. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [saidouni2007] Saidouni T., Bessaoudi M., and Terki A. Design and analysis of a mechanism actuating a sight device. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [saied2017] Saied H. and others . From non-model-based to model-based control of PKMs: a comparative study. In *International Congress for the Advancement of Mechanism, Machine, Robotics and Mechatronics Sciences*, Beyrouth, 2017.
- [saied2019] Saied H. and others . A new time-varying feedback RISE control of PKMs: theory and application. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Macau, 2019.
- [salah2017] Salah B. and others . Design and simulation based validation of the control architecture of a stacker crane based on an innovative wire-driven robot. *Robotics and Computer-Integrated Manufacturing*, 44:117–128, April 2017.
- [salcudean94] Salcudean S.E. and others . A six degree-of-freedom, hydraulic, one person motion simulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 2437–2443, San Diego, May, 8-13, 1994.
- [salcudean94-1] Salcudean S.E., Bachmann S., and Ben-Dov D. A six degree-of-freedom wrist with pneumatic suspension. In *IEEE Int. Conf. on Robotics and Automation*, pages 2444–2450, San Diego, May, 8-13, 1994.
- [salgado2007] Salgado O. and others . Type synthesis of a family of 3T1R fully-parallel manipulators using a group-theoretic approach. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [salgado2007-1] Salgado O. and others . A parallelogram-based parallel manipulator for Schönflies motion. *ASME J. of Mechanical Design*, 129(12):1243–1250, December 2007.
- [salgado2008] Salgado O. and others . Synthesis and design of a novel 3T1R fully-parallel manipulator. *ASME J. of Mechanical Design*, 130(4):042305–1/8, April 2008.
- [saltaren2007] Saltarén R. and others . Exploring deep sea by teleoperated robot. *IEEE Robotics and Automation Magazine*, 14(3):65–75, September 2007.
- [saltaren2007-1] Saltarén R. and others . Performance evaluation of spherical parallel platforms for humanoid robots. *Robotica*, 25(3):257–267, May 2007.
- [saltaren2009] Saltaren R. and others . Underwater parallel robot for oceanic measuring and observations-REMO I: development and navigation control advances. In *OCEANS 2009-EUROPE*, Bremen, 2009.
- [saltaren2011] Saltaren R. and others . Experiences and results from designing and developing a 6 dof underwater parallel robot. *Robotics and Autonomous Systems*, 59, 2011.
- [sanchez96] Sanchez J-C. *Intérêt d’une redondance cinématique pour la commande en effort d’un robot manipulateur. Applications au robot parallèle et redondant SPEED-R-MAN*. Ph.D. Thesis, ENSAE, Toulouse, June, 11, 1996. **Keywords:** control, redundant robot, dynamics.
- [sanchezlopez2013] Sanchez-Lopez J.L. Toward visual autonomous ship board landing of a VTOL UAV. In *International Conference on Unmanned Aircraft Systems (ICUAS)*, Atlanta, 2013.

- [sancisi2007] Sancisi N. and Parenti-Castelli V. On the synthesis of a 5-5 parallel mechanism reproducing the knee passive motion by means of the Burmester theory. In *2nd Int. Congress, Design and Modelling of mechanical systems*, Monastir, March, 19-21, 2007.
- [sancisi2007-1] Sancisi N. and Parenti-Castelli V. A 1-dof parallel spherical wrist for the modelling of the knee passive motion. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [sancisi2010] Sancisi N. and Parenti-Castelli V. A 1-dof parallel spherical wrist for the modelling of the knee passive motion. *Mechanism and Machine Theory*, 45(4):658–665, April 2010.
- [sancisi2012] Sancisi N. and Parenti-Castelli V. On the role of passive structures in the knee loaded motion. In *ARK*, pages 445–452, Innsbruck, June, 25-28, 2012.
- [sang-nd2018] Sang N.D. and others . Kinematic design of five-bar parallel robot by kinematically defined performance index for energy consumption. In *EUCOMES*, pages 239–247, Aachen, September, 4-6, 2018.
- [sang99] Sang L.H. and Han M-C. The estimation for forward kinematic solution of Stewart platform using the neural network. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Kyongju, October, 17-21, 1999.
- [sanjuan2018] Sanjuan J., Serje D., and Pacheco J. Closed form solution for direct and inverse kinematics of a US-RS-RPS 2-dof parallel robot. *Scientia Iranica*, 25(4):2144–2154, 2018.
- [santangelo2005] Santangelo B.G. and Sinatra R. Static balancing of a six-degree-of-freedom parallel mechanism with six two-link revolute legs. *Int. J. of Robotics and Automation*, 20(4):222–230, 2005.
- [santos2020] Santos J.C., Chemori A., and Gouttefarde M. Redundancy resolution integrated model predictive control of CDPRs: concept, implementation and experiments. In *IEEE Int. Conf. on Robotics and Automation*, Paris, May 31- August 31, 2020.
- [saputra2010] Saputra V.B., Ong S.K., and Nee A.Y.C. A PSO algorithm for mapping the workspace boundary of parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 4691–4696, Anchorage, May, 3-8, 2010.
- [sarkar2018] Sarkar B.K. Modeling and validation of a 2-dof parallel manipulator for pose control application. *Robotics and Computer-Integrated Manufacturing*, 50:234–241, 2018.
- [sarkisov2020] Sarkisov Y.S. and others . Optimal oscillation damping control of cable-suspended aerial manipulator with a single imu sensor. In *IEEE Int. Conf. on Robotics and Automation*, Paris, May 31- August 31, 2020.
- [sarkissyan89] Sarkissyan Y.L. and Parikyan T.F. Direct position problem for 6 (sps) linkage and associated synthesis problem. In *5th IFToMM Int. Symp. on linkages and CAD methods*, volume II-2, pages 543–550, Bucharest, 1989. in russian.
- [sarkissyan90] Sarkissyan Y.L. and Parikyan T.F. Analysis of special configurations of parallel topology manipulator. In *8th RoManSy*, pages 156–163, Cracovie, July, 2-6, 1990.
- [sarkissyan90-1] Sarkissyan Y.L. and Parikyan T.F. Manipulator, 1990. Russian Patent n° 1585144. **Keywords:** mechanical architecture, 6 dof robot, patent.
- [sarkissyan95] Sarkissyan Y.L. and Parikyan T.F. Direct position problem for Stewart platform and multiple points of 5(SS) linkage coupler curve. In *9th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 1614–1618, Milan, August 30- September 2, 1995.
- [sarma92] Sarma R., Kramer S.N., and Ramamurti V. The dynamic equations of motion and actuation scheme for the tetrahedron based variable geometry truss manipulator. In *22nd Biennial Mechanisms Conf.*, volume DE-45, pages 173–178, Scottsdale, September, 13-16, 1992.
- [sato2001] Sato D. and others . 3D graphics-based off-line task teaching for a force-controlled high-speed parallel robot. In *IEEE Int. Symp. on Assembly and Task planning*, pages 122–127, Fukuoka, May, 28-29, 2001.
- [sato2003] Sato D., Shitashimizu T., and Uchiyama M. Task teaching to a force-controlled high-speed parallel robot. In *IEEE Int. Conf. on Robotics and Automation*, pages 4110–4115, Taipei, September, 14-19, 2003.

- [sato2006] Sato D. and others . Task teaching system for a force-controlled parallel robot using multiple teaching modes with human demonstration data. In *IEEE Int. Conf. on Robotics and Automation*, pages 3960–3965, Orlando, May, 16-18, 2006.
- [savall2008] Savall J. and others . High-performance linear cable transmission. *ASME J. of Mechanical Design*, 130(6):064501–1/064501–5, June 2008.
- [savoure2006] Savoure L. and others . An improved method for the geometrical calibration of parallelogram based parallel robots. In *IEEE Int. Conf. on Robotics and Automation*, pages 769–776, Orlando, May, 16-18, 2006.
- [sayapin2002] Sayapin S.N. Application of parallel kinematics machines for active vibration isolation and pointing of high-precision large deployable space structure (HLDSS). In *3rd Chemnitzer Parallelkinematik Seminar*, pages 957–962, Chemnitz, April, 23-25, 2002.
- [scalera2018] Scalera L. and others . Cable-based robotic crane (cbrc): design and implementation of overhead traveling cranes based on variable radius drum. *IEEE Trans. on Robotics*, 34(2):474–494, April 2018.
- [scalera2020] Scalera L., Gasparetto A., and Zanotto D. Design and experimental validation of a 3-dof underactuated pendulum-like robot. *IEEE/ASME Trans. on Mechatronics*, 25(1):217–228, 2020.
- [schadlbauer2014] Schadlbauer J., Walter D.R., and Husty M. The 3-RPS parallel manipulator from an algebraic viewpoint. *Mechanism and Machine Theory*, 75:161–176, May 2014.
- [schappler2022] Schappler M. Structural and dimensional synthesis of overconstraint symmetric 3T2R parallel robots using Tait-Bryan-angle kinematic constraints. In *ARK*, Bilbao, June, 26-30, 2022.
- [schappler2022-1] Schappler M. Inverse kinematics for functional redundancy of symmetric 3T1R parallel manipulators using Tait-Bryan-angle kinematic constraints. In *ARK*, Bilbao, June, 26-30, 2022.
- [schenk2015] Schenck C., Bühlhoff H.H., and Masone C. Robust adaptive sliding mode control of a redundant cable-driven parallel robot. In *Int. Conf. on System Theory, Control and Computing*, Cheile Gradistei, October, 14-16, 2015.
- [schenk2016] Schenck C. and others . Modeling and analysis of cable vibrations for a cable-driven parallel robot. In *IEEE Int. Conf. on Information and Automation*, Ningbo, 2016.
- [schenk2017] Schenck C. and others . Application of a differentiator-based adaptive super-twisting controller for a redundant cable-driven parallel robot. In *3rd Int. Conf. on cable-driven parallel robots (CableCon)*, Québec, 2017.
- [schenk2018] Schenck C. and others . Port hamiltonian modeling of a cable-driven. parallel robot. In *6th IFAC Workshop on Lagrangian and Hamiltonian Methods for Nonlinear Control*, Valparaiso, May, 1-4, 2018.
- [schmid98] Schmid H.A. Spreizbandmechanik in parallelen maschinen. In *New machine concepts for handling and manufacturing devices on the basis of parallel structures*, pages 95–100, Braunschweig, November, 10-11, 1998.
- [schmid2001] Schmid H.A. Spreadbands drive parallel robots. *Industrial Robot*, 28(4):320–327, 2001.
- [schmidt-v2012] Schmidt V. and Pott A. Implementing extended kinematics of a cable-driven parallel robot in real-time. In *1st Int. Conf. on cable-driven parallel robots (CableCon)*, Stuttgart, September, 3-4, 2012.
- [schmidt-v2014] Schmidt V. and others . Extending dynamic trajectories of cable-driven parallel robots as a novel robotic roller coaster. In *Robotik 2014*, 2014.
- [schmidt-v2014-1] Schmidt V., Kraus W., and Pott A. Presentation of experimental results on stability of a 3 dof 4-cable parallel robot without constraints. In *2nd Int. Conf. on cable-driven parallel robots (CableCon)*, Duisburg, August, 24-27, 2014.
- [schmidt-v2016-1] Schmidt V. and Pott A. Increase of position accuracy for cable-driven parallel robots using a model for elongation of plastic fiber ropes. In *Euromech*, Nantes, September, 20-23, 2016.
- [schmidt-v2016-2] Schmidt V. and Pott A. Investigating the effect of cable force on winch winding accuracy for cable-driven parallel robots. *Proc. Instn Mech Engrs, Part K: J. Multi-body dynamics*, 230(3):237–241, 2016.

- [schmidt-v2017] Schmidt V. and others . Black-box accuracy compensation for a cable-driven parallel robot. In *Int. Conf. on Control, Automation and Systems (ICCAS)*, Jeju, October, 18-20, 2017.
- [schmidt-v2017-1] Schmidt V.. and Pott A. Bending cycles and cable properties of polymer fiber cables for fully constrained cable-driven parallel robots. In *3rd Int. Conf. on cable-driven parallel robots (CableCon)*, Québec, 2017.
- [schmidt-v2016] Schmidt V.L. *Modeling Techniques and Reliable Real-Time Implementation of Kinematics for Cable-Driven Parallel Robots using Polymer Fiber Cables*. Ph.D. Thesis, Universität Stuttgart, June, 20, 2016. **Keywords:** wire robot, kinematics.
- [schneider2013] Schneider U. Compensation of errors in robot machining with a parallel 3D-piezo compensation mechanism. In *46th CIRP Conference on Manufacturing Systems*, pages 305–310, Sesimbra, May, 29-31, 2013.
- [schonherr90-1-m] Schönherr M. Der messwagen für ultraleicht-flugzeuge läuft, August 1990. DULV, Nr. 3. **Keywords:** applications.
- [schonherr90-m] Schönherr M. Vorrichtung zur messung des Kräfte und momente ruhender and bewegte objekte, June, 9, 1990. German Patent DE 4018558C2. **Keywords:** applications, patent, force sensor.
- [schonherr98] Schönherr J. and Weidemann F. Bewertung und optimale auslegung von bewegungssystem mit parallelkinematik. In *New machine concepts for handling and manufacturing devices on the basis of parallel structures*, pages 35–49, Braunschweig, November, 10-11, 1998.
- [schonherr98-m] Schönherr M. Neun jahre praxiserfahrung mit dem ersten elektromotorisch angetriebenen hexapod-roboter. In *New machine concepts for handling and manufacturing devices on the basis of parallel structures*, pages 221–242, Braunschweig, November, 10-11, 1998.
- [schoppe2002] Schoppe E. and others . Tripod machine SKM 400, design, calibration and practical applications. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 579–594, Chemnitz, April, 23-25, 2002.
- [schorr2017] Schorr S.B. and Okamura A.M. Three-dimensional skin deformation as force substitution: Wearable device design and performance during haptic exploration of virtual environments. *IEEE Trans. on Haptics*, 10(3):418–430, 2017.
- [schottler2008] Schöttler K., Raatz A., and hesselbach J. *Parallel manipulators, Towards new applications*, chapter Size adapted parallel and hybrid parallel robot for sensor guided micro-assembly, pages 225–244. ITECH, April 2008. **Keywords:** planar robot, passive joints, 3 dof robot, 4 dof robot, micro robot, hybrid robot.
- [schreiber2003] Schreiber H. and Gosselin C.M. Analyse et conception d’une manipulateur parallèle à cinq degré de liberté. *Mechanism and Machine Theory*, 38(6):535–548, June 2003.
- [schreiber2018] Schreiber T. and Gosselin C.M. Kinematically redundant planar parallel mechanisms: Kinematics, workspace and trajectory planning. *Mechanism and Machine Theory*, 119:91–105, 2018.
- [schulz2017] Schulz S. and others . Sensor concept for solving the direct kinematics problem of the Stewart-Gough platform. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Vancouver, September, 24-28, 2017.
- [schulz2018] Schulz S., Seibel A., and Schlattmann J. Solution for the direct kinematics problem of the general Stewart-Gough platform by using only linear actuator orientations. In *ARK*, Bologna, July, 1-5, 2018.
- [schulz2019] Schulz S., Seible A., and Schlattmann J. Performance of an IMU-based sensor concept for solving the direct kinematics problem of the Stewart-Gough platform. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Macau, 2019.
- [schulz2019-1] Schulz S. On using inertial measurement units for solving the direct kinematics problem of parallel mechanisms. *Robotics*, November 2019.
- [schutz2010] Schütz D., Raatz A., and Hesselbach J. The development of a reconfigurable parallel robot with binary actuators. In *ARK*, pages 225–232, Piran, June 28- July 1, 2010.
- [schutz2012] Schütz D. and others . Type synthesis of binary actuated parallel mechanisms. In *ARK*, pages 131–138, Innsbruck, June, 25-28, 2012.

- [schutz2013] Schütz D., Raatz A., and Hesselbach J. Adapated task configuration of a reconfigurable binary parallel robot with PRRRP structure. *Robotica*, 31(2):285–293, March 2013.
- [schwaar2002] Schwaar M. and others . Mechatronic design, experimental property analysis and machining strategy for a 5-strut PKM. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 671–681, Chemnitz, April, 23-25, 2002.
- [sefrioui92] Sefrioui J. and Gosselin C. Singularity analysis and representation of planar parallel manipulators. *Robotics and Autonomous Systems*, 10(4):209–224, 1992.
- [sefrioui92-1] Sefrioui J. *Problème géométrique direct et lieux de singularité des manipulateurs parallèles*. Ph.D. Thesis, Université Laval, Québec, November, 2, 1992. **Keywords:** forward kinematics, singularity.
- [sefrioui94] Sefrioui J. and Gosselin C. Étude et représentation des lieux de singularités des manipulateurs parallèles sphériques à trois degrés de liberté avec actionneurs prismatiques. *Mechanism and Machine Theory*, 29(4):559–579, May 1994.
- [sefrioui95] Sefrioui J. and Gosselin C.M. On the quadratic nature of the singularity curves of planar three-degree-of-freedom parallel manipulators. *Mechanism and Machine Theory*, 30(4):533–551, May 1995.
- [seguchi86] Seguchi Y., Tanaka M., and others . Evolution of mast-type truss to robot arm. In *Japan-USA Symp. on Flexible Automation*, pages 251–259, Osaka, July, 14-18, 1986.
- [seguchi88] Seguchi Y., Tanaka M., and others . Motion and dynamics of flexible arm of a mast-type statically determinate truss. In *Int. Conf. on Computational Engineering Science*, pages 42.iii.1–42.iii.4, Atlanta, April, 10-14, 1988.
- [seguchi90] Seguchi Y., Tanaka M., and others . Dynamic analysis of a truss-type flexible robot arm. *JSME Int. J.*, 33(2):183–190, 1990.
- [seguchi90-1] Seguchi Y., Tanaka M., and others . Criteria-oriented configuration control of adaptive structure and its modular neural network representation. In *First Joint USA/Japan Conf. on adaptive structure*, pages 402–421, Maui, Hawaii, November, 13-15, 1990.
- [seibold2005] Seibold U., Kübler B., and Hirzinger G. Prototype of instrument for minimally invasive surgery with 6-axis force sensing capability. In *IEEE Int. Conf. on Robotics and Automation*, pages 498–503, Barcelona, April, 19-22, 2005.
- [selfridge2000] Selfridge R.G. and Matthew G.K. Forward assembly of some special Stewart platforms. *J. of Robotic Systems*, 17(10):517–526, 2000.
- [selig99] Selig J.M. and McAree P.R. Constrained robot dynamics II: parallel machines. *J. of Robotic Systems*, 16(9):487–498, 1999.
- [selig2001] Selig J.M. and Ding X. Theory of vibrations in Stewart platforms. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 2190–2195, Maui, Hawaii, October 29- November 3, 2001.
- [selig2008] Selig J.M. and Donelan P. A screw syzygy with applications to robot singularity computation. In *ARK*, pages 147–154, Batz/mer, June, 23-26, 2008.
- [selig2009] Selig J.M. and Li H. A geometric Newton-Raphson method for Gough-Stewart platform. In *Computational Kinematics*, pages 183–190, Duisburg, May, 6-8, 2009.
- [sellaouti2002] Sellaouti R., Konno A., and Ouezdou F.B. Design of a 3 DOFs parallel actuated mechanism for a biped hip joint. In *IEEE Int. Conf. on Robotics and Automation*, pages 1161–1166, Washington, May, 11-15, 2002.
- [sellaouti2005] Sellaouti R. and Ouezdou F.B. Design and control of a 3DOFs parallel actuated mechanism for biped application. *Mechanism and Machine Theory*, 40(12):1367–1393, December 2005.
- [sellet2019] Sellet H. and others . Active damping of parallel robots driven by flexible cables using cold-gas thrusters. In *IEEE Int. Conf. on Robotics and Automation*, Montréal, May, 20-24, 2019.

- [sellgren2002] Sellgren U. Modeling of mechanical interfaces in a systems context. In *Int. ANSYS Conf.*, Pittsburgh, April 2002.
- [sen-s-2003] Sen S., Dasgupta B., and Mallik A.K. Variational approach for singularity-path planning of parallel manipulators. *Mechanism and Machine Theory*, 38(11):1165–1183, November 2003.
- [sen98] Sen D. and Mruthyunjaya T.S. A centro-based characterization of singularities in the workspace of planar closed-loop manipulators. *Mechanism and Machine Theory*, 33(8):1091–1104, November 1998.
- [seo2013] Seo J-T. and others . Design of an antagonistically counter-balancing parallel mechanism. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Tokyo, November, 3-7, 2013.
- [seon2016] Seon J-A. and others . Cable configuration analysis to increase the rotational range of suspended 6-dof cable driven parallel robots. In *16th International Conference on Control, Automation and Systems (ICCAS)*, Gyeongju, October, 16-19, 2016.
- [sergiienko2016] Sergiienko N.Y., Cazzolato B.S., Ding B., and Arjomandi M. An optimal arrangement of mooring lines for the three-tether submerged point-absorbing wave energy converter. *Renewable Energy*, 93:27–37, 2016.
- [sergiu-dan2007] Sergiu-Dan S., Maties V., and Balan R. A multicriteria approach for the optimal design of 2 dof parallel robots used in construction applications. In *Int. Symp. on Automation and Robotics in Construction (ISARC)*, Madras, September, 19-21, 2007.
- [seriani2015] Seriani S., Seriani M., and Gallina P. Workspace optimization for a planar cable-suspended direct-driven robot. *Robotics and Computer-Integrated Manufacturing*, 34:1–7, August 2015.
- [seriani2015-1] Seriani S. and Gallina P. A storable tubular extensible member (STEM) parallel robot. *Mechanism and Machine Theory*, 90:95–107, 2015.
- [seriani2015phd] Seriani S. *Large Workspace Robots*. Ph.D. Thesis, University of Trieste, Trieste, 2015. **Keywords:** wire robot, applications.
- [seriani2016] Seriani S., Gallina P., and Wedler A. A modular cable robot for inspection and light manipulation on celestial bodies. *Acta Astronautica*, 123:145–153, 2016.
- [serracin2012] Serracin J.R. and others . Kinematic analysis of a novel 2-dof orientation device. *Robotics and Autonomous Systems*, 60(6):852–861, June 2012.
- [sevillano2008] Sevillano G. and others . Gait simulator based on the parallel Stewart-Gough platform. In *1st Conf. on Interdisciplinary Applications in Kinematics*, Lima, January, 9-11, 2008.
- [shah2017] Shah M. N. and others . Forward kinematics modelling and verification of a 3-dof cable driven ankle rehabilitation robot. *International Journal of Mechanical & Mechatronics Engineering*, 17(3), June 2017.
- [shahidi2017] Shahidi S.A. and others . A survey on precision of redundantly actuated DELTA-type parallel kinematic mechanisms. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Vancouver, September, 24-28, 2017.
- [shahinpoor92] Shahinpoor M. Kinematics of a parallel-serial (hybrid) manipulator. *J. of Robotic Systems*, 9(1):13–36, 1992.
- [shahmiri2016] Shahmiri F. and Gentry R. A survey of cable-suspended parallel robots and their applications in architecture and construction. In *XX Congress of the Iberoamerican Society of Digital Graphics*, Buenos Aires, November, 9-11, 2016.
- [shan2018] Shan X. and Cheng G. Structural error and friction compensation control of a 2(3PUS + S) parallel manipulator. *Mechanism and Machine Theory*, 124:92–103, 2018.
- [shang-w2014] Shang W. and Cong S. Robust nonlinear control of a planar 2-dof parallel manipulator with redundant actuation. *Robotics and Computer-Integrated Manufacturing*, 30(6):597–604, December 2014.
- [shang-w2015] Shang W. and Cong S. Dexterity and adaptive control of planar parallel manipulators with and without redundant actuation. *ASME Journal of Computational and Nonlinear Dynamics*, 10, January 2015.

- [shang-w2019] Shang W. and others . Synchronization control in the cable space for cable-driven parallel robots. *IEEE Trans. on Industrial Electronics*, 66(6):4544–4560, June 2019.
- [shang-w2020] Shang W. and others . Adaptive cross-coupled control of cable-driven parallel robots with model uncertainties. *IEEE Robotics and Automation Letters*, 5(3), 2020.
- [shang-w2020-1] Shang W. and others . Dual-space adaptive synchronization control of redundantly-actuated cable-driven parallel robots. *Mechanism and Machine Theory*, 152, 2020.
- [shang2012] Shang W-W., Cong S., and Ge Y. Adaptive computed torque control for a parallel manipulator with redundant actuation. *Robotica*, 30(3):457–466, April 2012.
- [shangying2004] Shangying Z., Junwei H., and Hui Z. RCP and RT control of 6-dof parallel robot. In *4th Int. Workshop on Robot Motion and Control (RoMoCo)*, pages 133–137, Puszczkovo Poznan, June, 17-20, 2004.
- [shanker2012] Shanker V. and Bandyopadhyay S. Singular manifold of the general hexagonal Stewart platform manipulator. In *ARK*, pages 397–404, Innsbruck, June, 25-28, 2012.
- [shao-p2019] Shao P. and others . Dynamic modeling of a two-dof rotational parallel robot with changeable rotational axes. *Mechanism and Machine Theory*, 131:318–335, 2019.
- [shao2011] Z-F Shao and others . Driving force analysis for the secondary adjustable system in FAST. *Robotica*, 29(6):903–915, November 2011.
- [shareef2017] Shareef Z. and others . Design and control of cooperative ball juggling DELTA robots without visual guidance. *Robotica*, 35:384–400, 2017.
- [sharifinia2016] Sharifnia M. and Akbarzadeh A. Approximate analytical solution for vibration of a 3-PRP planar parallel robot with flexible moving platform. *Robotica*, 34(1):71–97, January 2016.
- [sharifzadeh2017] Sharifzadeh M. and others . An experimental study on the direct & indirect dynamic identification of an over-constrained 3-dof decoupled parallel mechanism. *Mechanism and Machine Theory*, 116:178–202, 2017.
- [sharifzadeh2018] Sharifzadeh M. and others . An experimental dynamic identification & control of an overconstrained 3-dof parallel mechanism in presence of variable friction and feedback delay. *Robotics and Autonomous Systems*, 102:27–43, 2018.
- [shaw2001] Shaw D. and Chen Y-S. Cutting path generation of the Stewart platform-based milling machine using an end-mill. *Int. J. Prod. Res.*, 39(7):1367–1383, 2001.
- [shayya2013] Shayya S. and others . A novel (3T-1R) redundant parallel mechanism with large operational workspace and rotational capability. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 436–443, Tokyo, November, 3-7, 2013.
- [shayya2014] Shayya S. and others . A novel (3T-2R) parallel mechanism with large operational workspace and rotational capability. In *IEEE Int. Conf. on Robotics and Automation*, pages 5712–5719, Hong-Kong, 7 November 31- June , 2014.
- [shayya2014-1] Shayya S. and others . Dynamic analysis of 4 degrees of freedom redundant parallel manipulator. In *ARK*, Ljubljana, June 29- July 3, 2014.
- [shekarforoush2013] Shekarforoush S.M.M., Eghtesad M., and Farid M. Kinematic and static analyses of statically balanced spatial tensegrity mechanism with active compliant components. *J. of Intelligent and Robotic Systems*, 71(3-4):287–302, September 2013.
- [sheldon95] Sheldon P.C. Six axis machine tool, February, 14, 1995. United States Patent n° 5,388,935 Giddings & Lewis. **Keywords:** mechanical architecture,applications,machine-tool,patent.
- [sheldon96] Sheldon P.C. and others . Metrology instrument arm system, February, 6, 1996. United States Patent n° 5,489,168 Giddings & Lewis. **Keywords:** applications,patent.
- [shelef89] Shelef G. Six degree of freedom micromanipulator, April, 11, 1989. United States Patent n° 4,819,496 Air Force Washington. **Keywords:** mechanical architecture,6 dof robot,patent.



- [shen-h2005] Shen H. and others . Structure and analysis of a novel three-translation parallel mechanism. *Mechanism and Machine Theory*, 40(10):1181–1194, October 2005.
- [shen-h2016] Shen H. and others . The design methodology for fewer input–more output parallel mechanisms. *Mechanism and Machine Theory*, 104:43–58, 2016.
- [shen-h2017] Shen H. and Angeles J. Research on rolling parallel robot with hydraulic driven antiparallelogram chain. *J. of Mechanisms and Robotics*, 9(1), 2017.
- [shen-h2018] Shen H. and others . Design and direct position analysis of a new 3T1R parallel manipulator with low coupling degree. In *EUCOMES*, pages 333–339, Aachen, September, 4-6, 2018.
- [shen-h2020] Shen H. and others . Evaluation of topological properties of parallel manipulators based on the topological characteristic indexes. *Robotica*, 38:1381–1399, 2020.
- [shen-h2021] Shen H. and others . Kinematic sensitivity, parameter identification and calibration of a non-fully symmetric parallel Delta robot. *Mechanism and Machine Theory*, 161, July 2021.
- [shen-x2019] X. Shen and others . A smooth and undistorted toolpath interpolation method for 5-dof parallel kinematic machines. *Robotics and Computer-Integrated Manufacturing*, 57:347–356, 2019.
- [shen2002] Shen G. and others . A kinematic calibration of in-parallel actuated mechanisms using Fourier series (evaluation index for determination of the set of measurement paths). In *ARK*, pages 3–10, Caldes de Malavalla, June 29- July 2, 2002.
- [shi-h2014] Shi H., Duan X., and Su H-J. Optimization of the workspace of a mems hexapod nanopositioner using an adaptive genetic algorithm. In *IEEE Int. Conf. on Robotics and Automation*, pages 4043–4048, Hong-Kong, 7 July 31- June , 2014.
- [shi-j2011] Shi J., Li Z., and Wu Y. A new quantitative performance index for low mobility parallel kinematic manipulators’ accuracy. In *IEEE Int. Conf. on Robotics and Automation*, Shangai, May, 9-13, 2011.
- [shi-k2019] Shi K. and others . Cable-driven 4-dof upper limb rehabilitation robot. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Macau, 2019.
- [shi92] Shi X. and Fenton R.G. Solution to the forward instantaneous kinematics for a general 6 d.o.f. Stewart platform. *Mechanism and Machine Theory*, 27(3):251–259, May 1992.
- [shi92-1] Shi X. and Fenton R.G. Structural instabilities in platform-type parallel manipulators due to singular configurations. In *22nd Biennial Mechanisms Conf.*, volume DE-45, pages 347–352, Scottsdale, September, 13-16, 1992.
- [shi94] Shi X. and Fenton R.G. A complete and general solution to the forward kinematics problem of platform-type robotic manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 3055–3062, San Diego, May, 8-13, 1994.
- [shiang2000] Shiang W-J., Cannon D., and Gorman J. Optimal force distribution applied to a robotic crane with flexible cables. In *IEEE Int. Conf. on Robotics and Automation*, pages 1948–1954, San Francisco, April, 24-28, 2000.
- [shiau2008] Shiau T-N., Tsai Y-J., and Tsai M-S. Nonlinear dynamic analysis of a parallel mechanism with consideration of joint effects. *Mechanism and Machine Theory*, 43(4):491–505, April 2008.
- [shihora2022] Shihora N. and Simaan N. Geometric insights into kinematically-singular configurations of planar continuum robots. In *ARK*, Bilbao, June, 26-30, 2022.
- [shim-hs2013] Shim H-S., Seo T., and Lee J.N. Optimal torque distribution methods for a redundantly actuated 3-RRR parallel robot using a geometrical approach. *Robotica*, 31(4):541–554, July 2013.
- [shim97] Shim J-H. and others . Kinematic design of a six degree-of-freedom in-parallel actuated manipulator for probing task. In *IEEE Int. Conf. on Robotics and Automation*, pages 2967–2973, Albuquerque, April, 21-28, 1997.

- [shim97-1] Shim J-H. and others . Kinematic feature analysis of a 6-degrees-of-freedom in-parallel manipulator for micro-positioning. In *IROS*, pages 1617–1623, Grenoble, September, 7-11, 1997.
- [shim99] Shim J.H., Kwon D.S., and Cho H.S. Kinematic analysis and design of a six D.O.F. 3-prps in-parallel manipulator. *Robotica*, 17(3):269–281, May 1999.
- [shin2011] Shin S. and others . Kinematic optimization for isotropic stiffness of redundantly actuated parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, Shangai, May, 9-13, 2011.
- [shintemirov2016] Shintemirov A., Niyetkaliyev A., and Rubagotti M. Numerical optimal control of a spherical parallel manipulator based on unique kinematic solutions. *IEEE/ASME Trans. on Mechatronics*, 21(1):98–109, 2016.
- [shirazi2012] Shirazi A.R., Fakhrabadi M.M.S., and Ghanbari A. Optimal design of a 6-dof parallel manipulator using particle swarm optimization. *Advanced Robotics*, 26(13):1419–1441, 2012.
- [shirazi2014] Shirazi A.R., Fakhrabadi M.M.S., and Ghanbari A. Analysis and optimization of the 5-RPUR parallel manipulator. *Advanced Robotics*, 28(15):1021–1031, 2014.
- [shirkhodaie87] Shirkhodaie A.H. and Soni A.H. Forward and inverse synthesis for a robot with three degree-of-freedom. In *19th Summer Computer Simulation Conf.*, pages 851–856, Montréal, July, 27-30, 1987.
- [shoham2003] Shoham M. and others . Bone-mounted miniature robot for surgical procedures: concept and clinical applications. *IEEE Trans. on Robotics and Automation*, 19(5):893–901, October 2003.
- [shoham2005] Shoham M. Twisting wire actuator. *ASME J. of Mechanical Design*, 127(3):441–445, May 2005.
- [shoval2001] Shoval S. and Shoham M. Sensory redundant mobile mechanism. In *IEEE Int. Conf. on Robotics and Automation*, pages 2275–2278, Seoul, May, 23-25, 2001.
- [shuai2020] Shuai F. and others . A new approach to enhance the stiffness of heavy-load parallel robots by means of the component selection. *Robotics and Computer-Integrated Manufacturing*, 61, 2020.
- [shukla92] Shukla D. and Paul F.W. Motion kinematics of serie-parallel robots using a virtual link concept. In *22nd Biennial Mechanisms Conf.*, pages 49–57, Scottsdale, September, 13-16, 1992.
- [shum2000] Shum J.C.F. and Zsombor-Murray P.J. Direct kinematics of the double-triangular manipulator: an exercise in geometry thinking. In *ARK*, pages 385–394, Piran, June, 25-29, 2000.
- [siciliano98] Siciliano B. A study on the kinematics of a class of parallel manipulators. In *ARK*, pages 29–38, Strobl, June 29- July 4, 1998.
- [siciliano99] Siciliano B. The Tricept robot: inverse kinematics, manipulability analysis and closed-loop direct kinematics algorithm. *Robotica*, 17(4):437–445, July 1999.
- [siciliano2005] Siciliano B., Villani L., and Caccavale F. Kinematics, dynamics and control for a class of parallel robots. In *2nd Int. Colloquium, Collaborative Research Centre 562*, pages 109–121, Braunschweig, May, 10-11, 2005.
- [sika98] Šika S., Kočandrle P., and Stejskal V. An investigation of properties of the forward displacement analysis of the generalized Stewart platform by the mean of general optimization method. *Mechanism and Machine Theory*, 33(3):245–253, April 1998.
- [silva2005] Silva L.A. and others . Robotenis: optimal design of a parallel robot with high performance. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Edmonton, August, 2-6, 2005.
- [silver95] Silver R.M., Potzick J., and Hu Y-C. Metrology with the ultraviolet scanning transmission microscope. In *Proc. of the SPIE, Integrated circuit metrology, inspection and process control*, pages 437–445, Santa Clara, February, 20-22, 1995.
- [simaan98] Simaan N. and others . Design considerations of new six degrees-of-freedom parallel robots. In *IEEE Int. Conf. on Robotics and Automation*, pages 1327–1333, Louvain, May, 18-20, 1998.
- [simaan99] Simaan N. Analysis and synthesis of parallel robots for medical applications. Master’s thesis, Technion-Israel Institute of Technology, Haifa, 1999. **Keywords:** applications,6 dof robot,medical.

- [simaan2000] Simaan N. and Shoham M. Remarks on "hidden" lines in parallel robots. In *ARK*, Piran, June, 25-29, 2000.
- [simaan2001] Simaan N. and Shoham M. Singularity analysis of a class of composite serial in-parallel robots. *IEEE Trans. on Robotics and Automation*, 17(3):301–311, June 2001.
- [simaan2002] Simaan N. and Shoham M. Stiffness synthesis of a variable geometry planar robot. In *ARK*, pages 463–472, Caldes de Malavalla, June 29- July 2, 2002.
- [simaan2003] Simaan N. and Shoham M. Stiffness synthesis of a variable geometry six-degree-of-freedom double planar parallel robot. *Int. J. of Robotics Research*, 22(9):757–775, September 2003.
- [simaan2003-1] Simaan N. and Shoham M. Geometric interpretation of the derivatives of parallel robots' jacobian matrix with application to stiffness control. *ASME J. of Mechanical Design*, 125(1):33–42, March 2003.
- [simas2019] Simas H. and Di Gregorio R. Position analysis, singularity loci and workspace of a novel 2PRPU Schönflies-motion generator. *Robotica*, 37:141–160, 2019.
- [simas2022] Simas H., Simoni R., and Di Gregorio R. Wriflex: design and kinematic analysis of a self-aligning parallel wrist. In *ARK*, Bilbao, June, 26-30, 2022.
- [simionescu2006] Simionescu I. and Ciupitu L. Optimum design of 6-dof Stewart platforms. In *1st Int. Conf. Optimization of Robots and Manipulators, OPTIROB*, Predeal, May, 26-28, 2006.
- [simoni2009] Simoni R., Piga Carboni A., and Martins D. Enumeration of parallel manipulators. *Robotica*, 27(4):589–597, July 2009.
- [simoni2013] Simoni R. and others . Symmetry and invariants of kinematic chains and parallel manipulator. *Robotica*, 31(1):61–70, January 2013.
- [simoni2019] Simoni R. and others . Design and kinematic analysis of a 6-DOF foldable/deployable Delta parallel manipulator with spherical wrist for an I-AUV. In *OCEANS 2019*, Marseille, 2019.
- [sinatra2002] Sinatra R. A different kinematic model of the Tricept robot. In *ASME Design Engineering Technical Conference*, Montréal, September 29- October 2, 2002.
- [sinatra2008] Sinatra R. and Xi F. *Parallel manipulators, Towards new applications*, chapter Dynamics of hexapods with fixed-length legs, pages 245–268. ITECH, April 2008. **Keywords:** dynamics, balancing.
- [sincarsin87] Sincarsin W.G. and Hughes P.C. Trussarm : candidate geometries. Research Report 28-611/0401, Dynacon Enterprises Ltd., 1987.
- [singh2015] Singh Y. and others . Inverse dynamics and control of a 3-DOF planar parallel (U-shaped 3-PPR) manipulator. *Robotics and Computer-Integrated Manufacturing*, 34:164–179, August 2015.
- [singh2015-1] Singh Y. and Santhakumar M. Inverse dynamics and robust sliding mode control of a planar (2-PRP and 1-PPR) robot augmented with a nonlinear disturbance observer. *Mechanism and Machine Theory*, 92:29–50, 2015.
- [sirouspour2001] Sirouspour M.R. and Salcudean S.E. Nonlinear control of a hydraulic parallel manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 3760–3765, Seoul, May, 23-25, 2001.
- [sirouspour2001-1] Sirouspour M.R. and Salcudean S.E. Nonlinear control of hydraulic robots. *IEEE Trans. on Robotics and Automation*, 17(2):173–182, April 2001.
- [sisodiya2017] Sisodiya M.S. Optimization of joints and links in planar parallel robot mechanisms. *International Journal of Advances in Scientific Research and Engineering*, 13(4), May 2017.
- [six2017] Six D. and others . A controller avoiding dynamic model degeneracy of parallel robots during singularity crossing. *J. of Mechanisms and Robotics*, 9(5), October 2017.
- [six2018] Six D. and others . The kinematics, dynamics and control of a flying parallel robot with three quadrotors. *IEEE Robotics and Automation Letters*, 3(1), January 2018.

- [six2018-phd] Six D. *Conception et commande de robots parallèles volants*. Ph.D. Thesis, Ecole Centrale de Nantes, Nantes, December, 4, 2018. **Keywords:** wire robot, applications.
- [sklar88] Sklar M. and Tesar D. Dynamic analysis of hybrid serial manipulator system containing parallel modules. *J. of Mechanisms, Transmissions and Automation in Design*, 110(2):109–115, June 1988.
- [skopect2016] Skopect T., Sika Z., and Valasek M. Calibration using adaptive model complexity for parallel and fiber-driven mechanisms. *Robotica*, 34(6):1416–1435, June 2016.
- [slavutin2020] Slavutin M. and Reich Y. Singularity analysis of some multi-platform mechanisms by decomposition and reciprocity. *Mechanism and Machine Theory*, 146, 2020.
- [slutski96] Slutski L. Closed plane mechanisms as a basis of parallel manipulator. In *ARK*, pages 441–450, Portoroz-Bernadin, June, 22-26, 1996.
- [smartee93] STX Hughes. Smartee, 1993. Technical Note, Hughes STX Corporation, 4400 Forbes Bvd, Lanham, MD 20706, USA. **Keywords:** mechanical architecture, 6 dof robot, hardware.
- [smith91] Smith III W.F. and Nguyen C.C. Mechanical analysis and design of a six-degree-of-freedom robotic wrist for Space assembly. In *Proc. 23th South Eastern Symp. on System*, pages 177–181, Columbia, March, 10-12, 1991.
- [smith91-1] Smith III W.F. and Nguyen C.C. On the mechanical design of a Stewart platform-based robotics end-effector. In *IEEE Proc. of the Southeast Conf'91*, pages 875–879, Williamsburg, April, 7-10, 1991.
- [smits2020] Smits J. and others . Synthesis and methodology for optimal design of a parallel remote center of motion mechanism: Application to robotic eye surgery. *Mechanism and Machine Theory*, 151, 2020.
- [snyman2000] Snyman J.A. and Hay A.M. The chord method for the determination of non-convex workspaces of planar parallel platforms. In *ARK*, pages 285–294, Piran, June, 25-29, 2000.
- [snyman2000-1] Snyman J.A., Du Plessis L.J., and Duffy J. An optimisation approach to the determination of the boundaries of manipulator workspaces. *ASME J. of Mechanical Design*, 122(4):447–456, December 2000.
- [snyman2002] Snyman J.A. and Smit W.J. The optimal design of a planar parallel platform for prescribed machining tasks. *Multibody System Dynamics*, 8(2):103–115, 2002.
- [snyman2005] Snyman J.A. and Hay A.M. Optimal synthesis for a continuous prescribed dexterity interval of a 3-dof parallel planar manipulator for different prescribed output workspaces. In *Computational Kinematics*, Cassino, May, 4-6, 2005.
- [so2003] So B.R. and others . Design of a redundantly actuated leg mechanism. In *IEEE Int. Conf. on Robotics and Automation*, pages 4348–4353, Taipei, September, 14-19, 2003.
- [sokolov2005] Sokolov A. and Xirouchakis P. Kinematics of a 3-dof parallel manipulator with an P-R-S joint structure. *Robotica*, 23(2):207–217, March 2005.
- [sokolov2006] Sokolov A. and Xirouchakis P. Singularity analysis of a 3-dof parallel manipulator with R-P-S joint structure. *Robotica*, 24(1):131–142, January 2006.
- [sokolov2007] Sokolov A. and Xirouchakis P. Dynamic analysis of a 3-dof parallel manipulator with R-P-S structure. *Mechanism and Machine Theory*, 42(5):541–557, May 2007.
- [solazzi2004] Sloazzi M. and others . Kinematic analysis and singularity loci of a 4-UPU parallel manipulator. In *ARK*, Ljubljana, June 29- July 3, 2014.
- [son2017] Son N.N. and others . A novel adaptive feed-forward-pid controller of a scara parallel robot using pneumatic artificial muscle actuator based on neural network and modified differential evolution algorithm. *Robotics and Autonomous Systems*, 96:65–80, 2017.
- [song-se-2010] Song S-E. and others . Development of a pneumatic robot for MRI-guided transperineal prostate biopsy and brachytherapy: New approaches. In *IEEE Int. Conf. on Robotics and Automation*, pages 2580–2585, Anchorage, May, 3-8, 2010.

- [song-sk-2001] Song S.K. and Kwon D-S. New methodology for the forward kinematics of 6-dof parallel manipulators using tetrahedron configurations. In *IEEE Int. Conf. on Robotics and Automation*, Seoul, May, 23-25, 2001.
- [song-sk-2002] Song S.K. and Kwon D-S. New direct kinematics formulation of 6-dof Stewart-Gough platform using the tetrahedron approach. *Trans. on Control, Automation and System Engineering*, 4(3):217–223, September 2002.
- [song-sk-2012] Song S.K. and Kwon D-S. New direct kinematic formulation of a 6 d.o.f. Stewart-Gough platform using the tetrahedron approach. *Trans. on Control, Automation and System Engineering*, 4(2):217–223, September 2012.
- [song-x2019] Song X. and others . Dynamic feedforward control in decoupling space for a four-degree-of-freedom parallel robot. *International Journal of Advanced Robotic Systems*, 2019.
- [song-y2007] Song Y., Li Y., and Huang T. Inverse dynamics of 3-RPS parallel mechanism based on virtual work principle. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [song-y2014] Song Y. and others . A novel five-degree-of-freedom parallel manipulator and its kinematic optimization. *J. of Mechanisms and Robotics*, 6, November 2014.
- [song-y2018] Song Y. and others . Type synthesis of 1T2R and 2R1T parallel mechanisms employing conformal geometric algebra. *Mechanism and Machine Theory*, 121:475–486, 2018.
- [song-y2020] Song Y. and others . Dynamic characteristic prediction of a 5-dof hybrid machine tool by using scale model considering the geometric distortion of bearings. *Mechanism and Machine Theory*, 145, 2020.
- [song-y2020-1] Song Y., Kang X., and Dai J.S. Instantaneous mobility analysis using the twist space intersection approach for parallel mechanisms. *Mechanism and Machine Theory*, 151, 2020.
- [song98] Song J.I. and others . Nonlinear friction compensation methods for an in-parallel actuated 6-d.o.f. manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 169–174, Louvain, May, 18-20, 1998.
- [soni95] Soni A.H., Tanasi G.C., and Varanasi S. Closed-loop multi-degree freedom mechanisms for surface generation and patching in machining 3d surfaces. In *9th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 2668–2674, Milan, August 30- September 2, 1995.
- [sorli93] Sorli M. and Ceccarelli M. On the workspace of a 6 d.o.f. platform with three articulated double-parallelograms. In *ICAR*, pages 147–152, Tokyo, November, 1-2, 1993.
- [sorli93-1] Sorli M. and Zhmud' N. Investigation of force and moment measurement system for a robotic assembly hand. *Sensors and Actuators A*, 37-38:651–657, July - August , 1993.
- [sorli95] Sorli M. and others . Mechanics of Turin parallel robot. In *9th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 1880–1885, Milan, August 30- September 2, 1995.
- [sorli95-1] Sorli M. and Pastorelli S. Six-axis reticulated structure force/torque sensor with adaptable performances. *Mechatronics*, 5(6):585–601, September 1995.
- [sorli97] Sorli M. and others . Mechanics of Turin parallel robot. *Mechanism and Machine Theory*, 32(1):51–77, January 1997.
- [sovizi2014] Sovizi J. and others . Random matrix based uncertainty model for complex robotic systems. In *IEEE Int. Conf. on Robotics and Automation*, pages 4049–4054, Hong-Kong, 7 January 31- June , 2014.
- [sovizi2018] Sovizi J. and others . Wrench uncertainty quantification and reconfiguration analysis in loosely interconnected cooperative systems. *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part B: Mechanical Engineering*, 4(2), 2017.
- [spagnuolo2018] Spagnuolo G. and others . Kinetostatic characterization of a loading system based on a partially-decoupled parallel manipulator. In *ARK*, Bologna, July, 1-5, 2018.
- [spanos95] Spanos J., Rahman Z., and Blackwood G. A soft 6-axis active vibration isolator. In *American Control Conf.*, pages 412–416, Seattle, June, 21-23, 1995.

- [spanoudakis2000] Spanoudakis P. and others . Extremely high-resolution tip-tilt-piston mirror mechanism for the VLT-NAOS field selector. In *SPIE Symp. on Astronomical Telescope & Instrumentation*, Munchen, March 2000.
- [spencer2008] Spencer S.J. and others . A low cost parallel robot and trajectory optimization method for wrist and forearm rehabilitation using the Wii. In *2nd Biennial IEEE/RAS-EMBS Int. Conf. Biomedical Robotics and Biomechatronics*, Scottsdale, October, 19-22, 2008.
- [sreenivasan92] Sreenivasan S.V. and Nanua P. Solution of the direct position kinematics problem of the general Stewart platform using advanced polynomial continuation. In *22nd Biennial Mechanisms Conf.*, pages 99–106, Scottsdale, September, 13-16, 1992.
- [sreenivasan94] Sreenivasan S.V., Waldron K.J., and Nanua P. Closed-form direct displacement analysis of a 6-6 Stewart platform. *Mechanism and Machine Theory*, 29(6):855–864, August 1994.
- [sridhar2017] Sridhar D. and Williams II R.L. Kinematics and statics including cable sag for large cable suspended robots. *Global Journal of Researches in Engineering: H Robotics & Nano-Tec*, 17(1), 2017.
- [srivatsan2013] Srivatsan R.A. and Bandyopadhyay S. On the position kinematics analysis of MaPaMan, a reconfigurable three-degree-of-freedom spatial parallel manipulator. *Mechanism and Machine Theory*, 62:159–165, April 2013.
- [srivatsan2013-1] Srivatsan R.A., Bandyopadhyay S., and Ghosal A. Analysis of the degrees-of-freedom of spatial parallel manipulators in regular and singular configurations. *Mechanism and Machine Theory*, 69:127–141, 2013.
- [srivatsan2014] Srivatsan R.A. and Bandyopadhyay S. Analysis of constraint equations and their singularities. In *ARK*, Ljubljana, June 29- July 3, 2014.
- [staffetti2000] Staffetti E. and Thomas F. Kinestatic analysis of serial and parallel robot manipulators using Grassman-Cayley algebra. In *ARK*, pages 17–36, Piran, June, 25-29, 2000.
- [staffetti2002] Staffetti E., Bruyninckx H., and De Schutter J. On the invariance of manipulability indices. In *ARK*, pages 57–66, Caldes de Malavalla, June 29- July 2, 2002.
- [staffetti2004] Staffetti E. Kinestatic analysis of robot manipulators using the Grassmann-Cayley algebra. *IEEE Trans. on Robotics and Automation*, 20(2):200–210, April 2004.
- [staicu2003] Staicu S. and Carp-Ciocardia D.C. Dynamic analysis of Clavel’s Delta parallel robot. In *IEEE Int. Conf. on Robotics and Automation*, pages 4116–4121, Taipei, September, 14-19, 2003.
- [staicu2006] Staicu S., Zhang H., and Rugesu R. Dynamic modelling of a 3-dof parallel manipulator using recursive matrix relations. *Robotica*, 24(1):125–130, January 2006.
- [staicu2007] Staicu S. Dynamics of a 3 –  $\underline{RRR}$  spherical parallel mechanism based on principle of virtual powers. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [staicu2008] Staicu S. and Zhang D. A novel dynamic modelling approach for parallel mechanisms analysis. *Robotics and Computer-Integrated Manufacturing*, 24(1):167–172, February 2008.
- [staicu2009] Staicu S. Recursive modelling in dynamics of Delta parallel robot. *Robotica*, 27(2):199–207, March 2009.
- [staicu2009-1] Staicu S. Dynamics analysis of the Star parallel manipulator. *Robotics and Autonomous Systems*, 57(11):1057–1064, November 2009.
- [staicu2009-2] Staicu S. Inverse dynamics of the 3-PRR parallel manipulator. *Robotics and Autonomous Systems*, 57(5):556–563, May 2009.
- [staicu2009-3] Staicu S. Recursive modelling in dynamics of Agile Wrist spherical parallel robot. *Robotics and Computer-Integrated Manufacturing*, 25(2):409–416, April 2009.
- [staicu2009-4] Staicu S. Dynamics of the spherical 3 –  $\underline{UPS}/S$  parallel mechanism with prismatic actuators. *Multibody System Dynamics*, 22:115–132, 2009.

- [staicu2011] Staicu S. Dynamics of the 6-6 Stewart parallel manipulator. *Robotics and Computer-Integrated Manufacturing*, 27(1):212–220, February 2011.
- [staicu2012] Staicu S. Matrix modeling of inverse dynamics of spatial and planar parallel robots. *Multibody System Dynamics*, 27:239–265, 2012.
- [staicu2015] Staicu S. Dynamics modelling of a Stewart-based hybrid parallel robot. *Advanced Robotics*, 29(14):929–938, 2015.
- [staicu2018] Staicu S. and others . Kinematic analysis of the X4 translational–rotational parallel robot. *International Journal of Advanced Robotic Systems*, 2018.
- [stamper97] Stamper R.C., Tsai C-W., and Walsh G.C. Optimization of a three dof translational platform for well-conditioned workspace. In *IEEE Int. Conf. on Robotics and Automation*, pages 3250–3255, Albuquerque, April, 21-28, 1997.
- [stan2008] Stan S-D. and others . A novel virtual reality robot interface for Isoglide3 parallel robot. In *ICIRA*, pages 1265–1275, Wuhan, October, 15-17, 2008.
- [stan2008-1] Stan S-D., Maties V., and Balad R. *Parallel manipulators, Towards new applications*, chapter Optimal design of parallel kinematic machines with 2 degrees of freedom, pages 295–320. ITECH, April 2008. **Keywords:** 2 dof robot,optimal design.
- [stan2008-2] Stan S-D. and others . Kinematics analysis, design, and control of an Isoglide3 parallel robot (IG3PR). In *34th Annual Conference of IEEE Industrial Electronics*, pages 2636–2641, 2008.
- [stechert2007] Stechert C. and Franke H-J. *Requirement oriented configuration of parallel robotic systems*, chapter 4, pages 259–268. Springer, 2007. **Keywords:** modular robot,optimal design.
- [stechert2007-1] Stechert C., Pavlovic N., and Franke H-J. Parallel robots with adaptronic components - Design through different knowledge domains. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [stengele2002] Stengele G. CROSS HULLER SPECH Xperimental, a machining center with new hybrid kinematics. In *3rd Chemnitz Parallelkinematik Seminar*, pages 607–627, Chemnitz, April, 23-25, 2002.
- [sternheim87] Sternheim F. Computation of the direct and inverse geometric models of the Delta 4 parallel robot. *Robotersysteme*, 3(4):199–203, 1987.
- [sternheim88] Sternheim F. Tridimensionnal computer simulation of a parallel robot. Results for the Delta 4 machine. In *18th Int. Symp. on Industrial Robots (ISIR)*, pages 333–340, Lausanne, April, 26-28, 1988.
- [stevens94] Stevens B.S. and Clavel R. The Delta parallel robot, its future in industry. In *ISRAM*, pages 273–278, Hawaiï, August, 15-17, 1994.
- [stewart65] Stewart D. A platform with 6 degrees of freedom. *Proc. of the Institution of mechanical engineers*, 180(Part 1, 15):371–386, 1965.
- [stigger2018] Stigger T., Pfüner M., and Husty M. Workspace and singularity analysis of a 3-RUUU parallel manipulator. In *EUCOMES*, pages 325–332, Aachen, September, 4-6, 2018.
- [stigger2018-1] Stigger T. and others . Algebraic analysis of a 3-RUU parallel manipulator. In *ARK*, Bologna, July, 1-5, 2018.
- [stigger2019] Stigger T. and others . Analysis of a 3-RUU parallel manipulator using algebraic constraints. *Mechanism and Machine Theory*, 136:256–268, 2019.
- [stocco96] Stocco L. and Salcudean T. A coarse-fine approach to force-reflecting hand controller design. In *IEEE Int. Conf. on Robotics and Automation*, pages 404–410, Minneapolis, April, 24-26, 1996.
- [stocco2001] Stocco L. and Salcudean T. Optimal kinematic design of a haptic pen. *IEEE/ASME Trans. on Mechatronics*, 6(3):210–220, September 2001.

- [stock2003] Stock M. and Miller K. Optimal kinematic design of spatial parallel manipulators: application to linear Delta robot. *ASME J. of Mechanical Design*, 125(2):292–301, June 2003.
- [stoeffler2022] Stoeffler C. and others . Kinematic analysis of a novel humanoid wrist parallel mechanism. In *ARK*, Bilbao, June, 26-30, 2022.
- [stoica2012] Stoica A. and others . Workspace and singularity analysis for a parallel robot used in surgical operation. In *4th European Conf. on Mechanism Science (Eucomes)*, pages 149–158, Santander, September, 19-21, 2012.
- [stojanovic2016] Stojanovic V. and Nedic N. A nature inspired parameter tuning approach to cascade control for hydraulically driven parallel robot platform. *J Optim Theory Appl*, 168:332–347, 2016.
- [stoltmann2018] Stoltmann M. and others . Flatness-based feedforward control of a crane manipulator with four load chains. In *EUCOMES*, pages 61–68, Aachen, September, 4-6, 2018.
- [stone98] Stone W.C. and Pfeffer L.E. Automation infrastructure system for a robotic 30-ton bridge crane. In *American Society of Civil Engineers Conf.*, pages 195–201, Albuquerque, April, 26-30, 1998.
- [stoughton87] Stoughton R. and Kokkinis T. Some properties of a new kinematic structure for robot manipulators. In *ASME Design Automation Conf.*, pages 73–79, Boston, June, 28, 1987.
- [stoughton91] Stoughton R. and Arai T. Kinematic optimization of a chopsticks-type micromanipulator, 1991. **Keywords:** mechanical architecture,optimal design,micro robot,design.
- [stoughton91-1] Stoughton R. and Arai T. Optimal sensor placement for forward kinematics evaluation of a 6-dof parallel link manipulator. In *IEEE Int. Conf. on Intelligent Robots and Systems, (IROS)*, pages 785–790, Osaka, November, 3-5, 1991.
- [stoughton93] Stoughton R. and Arai T. Kinematic optimization of a chopsticks-type micro-manipulator. In *Japan-USA Symp. on Flexible Automation*, pages 151–157, San Fransisco, July, 13-15, 1993.
- [stoughton93-1] Stoughton R. and Arai T. A modified Stewart platform manipulator with improved dexterity. *IEEE Trans. on Robotics and Automation*, 9(2):166–173, April 1993.
- [stoughton94] Stoughton R. and others . A redundant, 6-DOF parallel manipulator structure with improved workspace and dexterity. In *ISRAM*, pages 577–581, Hawaiï, August, 15-17, 1994.
- [stump2006] Stump E. and Kumar V. Workspaces of cable-actuated parallel manipulators. *ASME J. of Mechanical Design*, 128(1):159–167, January 2006.
- [su-hj-2003] Su H-J., Dietmaier P., and J.M. McCarthy. Trajectory planning for constrained parallel manipulators. *ASME J. of Mechanical Design*, 125(4):709–716, December 2003.
- [su-hj-2005] Su H-J. and J.M. McCarthy. Dimensioning a constrained parallel robot to reach a set of task positions. In *IEEE Int. Conf. on Robotics and Automation*, pages 4037–4041, Barcelona, April, 19-22, 2005.
- [su-t2018] Su T. and others . Time-optimal trajectory planning for Delta robot based on quintic Pythagorean-Hodograph curves. *IEEE Access*, 2018.
- [su-y2015] Su Y., Quiu Y., and Liu P. The continuity and real-time performance of the cable tension determining for a suspend cable- driven parallel camera robot. *Advanced Robotics*, 291(12):743–752, 2015.
- [su-yx-2001-1] Su Y.X. and others . Development of a large parallel-cable manipulator for the feed-supporting system of a next-generation large radio telescope. *J. of Robotic Systems*, 18(11):633–643, 2001.
- [su-yx-2001-2] Su Y.X. and others . Genetic design of kinematically optimal fine tuning Stewart platform for large spherical radio telescope. *Mechatronics*, 11(7):821–835, 2001.
- [su-yx-2004] Su Y.X. and others . Disturbance-rejection high-precision motion control of a Stewart platform. *IEEE Trans. on Control Systems Technology*, 12(3):364–374, May 2004.
- [su-yx-2005] Su Y.X. and others . Non-linear PD synchronized control for parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 1386–1391, Barcelona, April, 19-22, 2005.



- [su2001] Su X.S. and others . A real coded genetic optimal kinematic design of a Stewart fine tuning platform for a large radio telescope. *J. of Robotic Systems*, 18(9):507–516, 2001.
- [su2002] Su X.S. and others . Singularity analysis of a 6 DOF Stewart platform using genetic algorithm. In *Int. Conf. on Systems, Man and Cybernetics*, volume 7, Hammamet, October, 6-9, 2002.
- [su2003] Su X.S. and others . Singularity analysis of fine-tuning Stewart platform for large radio telescope using genetic algorithm. *Mechatronics*, 13(5):413–425, June 2003.
- [subramaniam92] Subramaniam M. and Kramer S.N. The inverse kinematic solution of the tetrahedron based variable geometry truss manipulator. *ASME J. of Mechanical Design*, 114(3):433–437, September 1992.
- [subrin2013] Subrin K. and others . New redundant architectures in machining: Serial and parallel robots. *Procedia Engineering*, 61:158–166, 2013.
- [such2009] Such M. and others . An approach based on the catenary equation to deal with static analysis of three dimensional cable structures. *Engineering structures*, 31(9):2162–2170, 2009.
- [sugahara2003] Suguhara Y. and others . Control and experiments of a multi-purpose bipedal locomotor with parallel mechanism. In *IEEE Int. Conf. on Robotics and Automation*, pages 4342–4347, Taipei, September, 14-19, 2003.
- [sugar2002] Sugar T.G. and Kumar V. Design and control of a compliant parallel manipulator. *ASME J. of Mechanical Design*, 124(4):676–683, December 2002.
- [sugimoto82] Sugimoto K., Duffy J., and Hunt K.H. Special configurations of spatial mechanisms and robot arms. *Mechanism and Machine Theory*, 17(2):119–132, 1982.
- [sugimoto87] Sugimoto K. Kinematic and dynamic analysis of parallel manipulators by means of motor algebra. *J. of Mechanisms, Transmissions and Automation in Design*, 109(1):3–7, March 1987.
- [sugimoto88] Sugimoto K. Computational scheme for dynamic analysis of parallel manipulators. In *ASME Proc. of the 20th Biennial Mechanisms Conf.*, pages 341–351, Kissimmee, Orlando, September, 25-27, 1988.
- [sugimoto89] Sugimoto K. Computational scheme for dynamic analysis of parallel manipulators. *J. of Mechanisms, Transmissions and Automation in Design*, 111(1):29–33, March 1989.
- [sui2003] Sui C. and others . Stiffness study on a 6-dof parallel wire driven robot. In *11th ICAR*, pages 1787–1792, Coimbra, June 30- July 3, 2003.
- [sujan2004] Sujan V.A. and Dubowsky S. Design of lightweight hyper-redundant deployable binary manipulator. *ASME J. of Mechanical Design*, 126(1):29–39, January 2004.
- [sumpter85] Sumpter B. and Soni A.H. Simulation algorithm of Oklahoma Crawdad robot. In *9th Applied Mechanisms Conf.*, pages VI.1–VI.3, Kansas City, January, 28-30, 1985.
- [sun-d2006] Sun D. and others . Synchronous tracking control of parallel manipulators using cross-coupling approach. *Int. J. of Robotics Research*, 25(11):1137–1147, November 2006.
- [sun-g2021] Sun G. and others . Direct method for tension feasible region calculation in multi-redundant cable-driven parallel robots using computational geometry. *Mechanism and Machine Theory*, 158, 2021.
- [sun-h2020] Sun H. and others . Dynamic modeling and error analysis of a cable-linkage serial-parallel palletizing robot. *IEEE Access*, 2020.
- [sun-h2020-1] Sun H. and others . Dynamic response of spatial flexible structures subjected to controllable force based on cable-driven parallel robots. *IEEE/ASME Trans. on Mechatronics*, 25(6), December 2020.
- [sun-h2021] Sun H. and others . Research on the configuration of cable-driven parallel robots for vibration suppression of spatial flexible structures. *Aerospace Science and Technology*, 109, 2021.
- [sun-x2020] Sun X. and others . Integrated design, fabrication, and experimental study of a parallel micro-nano positioning-vibration isolation stage. *Robotics and Computer-Integrated Manufacturing*, 66, 2020.

- [sun2016] Sun T. and others . Kinematic calibration of a 3-dof rotational parallel manipulator using laser tracker. *Robotics and Computer-Integrated Manufacturing*, 41:78–91, 2016.
- [sun2016-1] Sun T., Lian B., and Song Y. Stiffness analysis of a 2-dof over-constrained rpm with an articulated traveling platform. *Mechanism and Machine Theory*, 96:165–178, 2016.
- [sun2018] Sun T. and Lian B. Stiffness and mass optimization of parallel kinematic machine. *Mechanism and Machine Theory*, 120:73–88, 2018.
- [sun2018-1] Sun T., Lian D., and Song Y. Singular-perturbation-based nonlinear hybrid control of redundant parallel robot. *IEEE Trans. on Industrial Electronics*, 66(4), 2018.
- [sun2019] Sun T. and Yang S. An approach to formulate the hessian matrix for dynamic control of parallel robots. *IEEE/ASME Trans. on Mechatronics*, 24(1), February 2019.
- [sun2020] Sun T. and others . Kinematic calibration of serial and parallel robots based on finite and instantaneous screw theory. *IEEE Trans. on Robotics*, 36(3), June 2020.
- [sunkari2006] Sunkari R.P. and Schmidt L.C. Structural synthesis of planar kinematic chains by adapting McKay-type algorithm. *Mechanism and Machine Theory*, 41(9):1021–1030, September 2006.
- [surdilovic2004] Surdilovic D. and Bernhardt R. STRING-MAN: a new wire robot for gait rehabilitation. In *IEEE Int. Conf. on Robotics and Automation*, pages 2031–2036, New Orleans, April, 28-30, 2004.
- [surdilovic2012] Surdilovic D., Radojicic D., and Krüger J. Geometric stiffness analysis of wire-robots: a mechanical approach. In *1st Int. Conf. on cable-driven parallel robots (CableCon)*, Stuttgart, September, 3-4, 2012.
- [surdilovic2014] Surdilovic D., Radijicic J., and Bremer N. Efficient calibration of cable-driven parallel robots with variable structure. In *2nd Int. Conf. on cable-driven parallel robots (CableCon)*, Duisburg, August, 24-27, 2014.
- [sutter92] Sutter T.R. and others . Structural characterization of a first generation articulated truss joint for space crane application. Research Report TM 4371, NASA Research Center, Langley, June 1992.
- [suzumori94] Suzumori K. Fma hand. *Advanced Robotics*, 8(6):607, December 1994.
- [svinin2000] Svinin M.M., Ueda K., and Uchiyama M. On the stability conditions for a class of parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 2386–2391, San Francisco, April, 24-28, 2000.
- [svinin2001] Svinin M., Hosoe S., and Uchiyama M. On the stability and stabilizability of elastically suspended rigid bodies. In F.C. Park C.C. Iurascu, editor, *Computational Kinematics*, pages 155–166. EJCK, May, 20-22, 2001. **Keywords:** stiffness, control.
- [svinin2001-1] Svinin M., Hosoe S., and Uchiyama M. On the stiffness and stability of Gough-Stewart platforms. In *IEEE Int. Conf. on Robotics and Automation*, pages 3268–3273, Seoul, May, 23-25, 2001.
- [szatmari99] Szatmari S. Geometrical errors of parallel robots. *Periodica Polytechnica Ser Mech Eng*, 43(2):155–162, 1999.
- [szilaghyi2012] Szilaghyi A. and others . Kinematic analysis of a parallel surgical robot. In *ARK*, pages 333–340, Innsbruck, June, 25-28, 2012.
- [taban85] Taban V. and Soni A.H. Design and programming of a lobster arm robot. In *9th Applied Mechanisms Conf.*, pages V.1–V.6, Kansas City, January, 28-30, 1985.
- [tadakuma2008] Tadakuma K. and others . The experimental study of a precision parallel manipulator with binary actuation: With application to MRI cancer treatment. In *IEEE Int. Conf. on Robotics and Automation*, pages 2503–2508, Pasadena, May, 19-23, 2008.
- [tadjari2017] Tadjari F. and others . Robust control of a 3-dof parallel cable robot using an adaptive neuro-fuzzy inference system. In *Artificial Intelligence and Robotics (IRANOPEN)*, 2017.
- [tadokoro94] Tadokoro S. Control of parallel mechanisms. *Advanced Robotics*, 8(6):559–571, December 1994.

- [tadokoro94-1] Tadokoro S. A 6 d.o.f. parallel robot wrist joint by a pneumatic actuator drive. *Advanced Robotics*, 8(6):603, December 1994.
- [tadokoro96] Tadokoro S. and others . On fundamental design of wire configuration of wire driven parallel manipulators with redundancy. In *Japan-USA Symp. on Flexible Automation*, pages 151–158, Boston, July, 7-10, 1996.
- [tadokoro2001] Tadokoro S. and others . A parallel cable-driven motion base for virtual acceleration. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Maui, Hawaii, October 29- November 3, 2001.
- [tadokoro2002] Tadokoro S. and others . A motion base with 6-dof by parallel cable driven architecture. *IEEE/ASME Trans. on Mechatronics*, 7(2):115–123, June 2002.
- [tadokoro99] Tadokoro S. and others . A portable parallel manipulator for search and rescue at large-scale urban earthquakes and an identification algorithm for the installation in unstructured environments. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 1222–1227, Kyongju, October, 17-21, 1999.
- [taghavi2012] Taghavi M. and others . Workspace improvement of two-link cable-driven mechanisms with spring cables. In *1st Int. Conf. on cable-driven parallel robots (CableCon)*, Stuttgart, September, 3-4, 2012.
- [taghavi2017] Taghavi M. and others . Cable-driven parallel robot for curtain wall modules automatic installation. In *34th Int. Symp. on Automation and Robotics in Construction*, Taipei, 2018.
- [taghavi2018] Taghavi M. and others . Development of a modular end-effector for the installation of curtain walls with cable-robots. *J. of Facade Design & Engineering*, 6(2), 2018.
- [taghirad2008] Taghirad H.D. and Nahon M.A. Dynamic analysis of a macro-micro redundantly actuated parallel manipulator. *Advanced Robotics*, 22(9):949–981, 2008.
- [taghirad2011] Taghirad H.D. and Bedoustani Y.D. An analytic-iterative redundancy resolution scheme for cable-driven redundant parallel manipulator. *IEEE Trans. on Robotics*, 27(6):670–676, December 2011.
- [taherifar2016] Taherifar A. and others . Inverse forward dynamics of N-3RPS manipulator with lockable joints. *Robotica*, 34(6):1383–1402, June 2016.
- [tahmasebi91] Tahmasebi F. and Tsai L.-W. Closed form direct kinematics solution of a new parallel minimanipulator. Research Report TR91-92, University of Maryland, 1991.
- [tahmasebi94] Tahmasebi F. and Tsai L.-W. Closed form direct kinematics solution of a new parallel minimanipulator. *ASME J. of Mechanical Design*, 116(4):1141–1147, December 1994.
- [tahmasebi94-1] Tahmasebi F. and Tsai L.-W. Workspace and singularity analysis of a novel six-dof parallel minimanipulator. *J. of Applied Mechanisms and Robotics*, 1(2):31–40, March 1994.
- [tahmasebi94-2] Tahmasebi F. and Tsai L.-W. Simplified and symmetrical five-bar linkage driver for manipulating a six-degree-of-freedom parallel minimanipulator with three inextensible limbs, April, 12, 1994. United States Patent n° 5,301,566, US Army. **Keywords:** 6 dof robot, patent.
- [tahri2007] Tahri O. and others . Omnidirectional visual-servo of a Gough-Stewart platform. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 1326–1331, San Diego, September, 22-26, 2007.
- [tahri2009] Tahri O. and others . Omnidirectional visual-servo of a Gough-Stewart platform. *IEEE Trans. on Robotics*, 25(1):178–183, February 2009.
- [taikawa2003] Takaiwa M. and Noritsugu T. Development of force displaying device using pneumatic parallel manipulator and application to palpation motion. In *IEEE Int. Conf. on Robotics and Automation*, pages 4098–4103, Taipei, September, 14-19, 2003.
- [takaiwa2005] Takaiwa M. and Noritsugu T. Development of wrist rehabilitation equipment using pneumatic parallel manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 2313–2318, Barcelona, April, 19-22, 2005.
- [takamasu99] Takamasu K. and others . Development of nano-CMM and parallel-CMM, CMM in the 21th century. In *Int. Dimensional Metrology Workshop*, Tennessee, May, 10-13, 1999.

- [takanobu92] Takanobu H. and others . Bio-parallel mechanism of mastication robot. In *IMACS/SICE Int. Symp. on Robotics, Mechatronics, and Manufacturing Systems*, pages 487–492, Kobe, September, 16-20, 1992.
- [takanobu2000] Takanobu H. and others . Mouth opening and closing training with 6-dof parallel robot. In *IEEE Int. Conf. on Robotics and Automation*, pages 1384–1389, San Francisco, April, 24-28, 2000.
- [takanobu2001] Takanobu H. and others . Remote therapy with mouth opening and closing training robot between Tokyo and Yamanashi 120 km. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 1584–1589, Maui, Hawaii, October 29- November 3, 2001.
- [takeda93] Takeda Y., Funabashi H., and Sasaki Y. Analysis of working space and motion transmissibility of spherical in-parallel actuated mechanism. In *ICAR*, pages 165–170, Tokyo, November, 1-2, 1993.
- [takeda2002] Takeda Y., Shen G., and Funabashi H. A DBB-based kinematic calibration method for in-parallel actuated mechanisms using a Fourier series. In *ASME Design Engineering Technical Conference*, Montréal, September 29- October 2, 2002.
- [takeda2004] Takeda Y. and others . An in-parallel actuated manipulator with redundant actuators for gross and fine motion. In *IEEE Int. Conf. on Robotics and Automation*, pages 749–754, New Orleans, April, 28-30, 2004.
- [takeda2005] Takeda Y. Kinematic analysis of parallel mechanisms at singular points at which a connecting chain has local mobility. In *Computational Kinematics*, Cassino, May, 4-6, 2005.
- [takeda2005-1] Takeda Y. and others . Development of position-orientation decoupled spatial in-parallel actuated mechanisms with six degrees of freedom. *J. of Robotics and Mechatronics*, 17(1):59–68, February 2005.
- [takeda2012] Takeda Y. and others . Orientation capability of a 3-RPSR parallel mechanism for a movable-die drive mechanism of pipe bender. In *ARK*, pages 253–260, Innsbruck, June, 25-28, 2012.
- [takemura2004] Takemura F. and others . Proposition of a human body searching strategy using a cable-driven robot at major disaster. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Sendai, September 28-October 2, 2004.
- [takemura2005] Takemura F. and others . Development of the balloon-cable driven robot for information collection from sky and proposal of the search strategy at a major disaster. In *IEEE/ASME Int. Conf. on Advanced Intelligent Mechatronics*, pages 658–663, Monterey, July, 24-28, 2005.
- [takemura2005-1] Takeda Y. and others . A human body searching strategy using a cable-driven robot with an electromagnetic wave direction finder at major disasters. *Advanced Robotics*, 19(3):331–347, 2005.
- [takemura2006] Takeda Y., Maeda K., and Tadokoro S. Attitude stability of a cable driven balloon robot. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 3504–3509, Beijing, October, 9-15, 2006.
- [talemasouleh2010] Tale Masouleh M., Husty M., and Gosselin C. Forward kinematic problem of 5-PRUR parallel mechanism using Study parameters. In *ARK*, pages 211–221, Piran, June 28- July 1, 2010.
- [talemasouleh2010-1] Tale Masouleh M. and others . Forward kinematic problem and constant orientation workspace of 5-RPRRR (3T2R) parallel mechanisms. In *18th Iranian Conf. on Electrical Engineering*, 2010.
- [talemasouleh2011] Tale Masouleh M. and others . Forward kinematic problem of 5 – RPUR parallel mechanisms (3T2R) with identical limb structure. *Mechanism and Machine Theory*, 46(7):945–959, July 2011.
- [talemasouleh2011-1] Tale Masouleh M. and others . Kinematic analysis of 5-RPUR (3T2R) parallel mechanisms. *Meccanica*, 46:131–146, 2011.
- [talke2018] Talke K.A., De Oliveira M., and Bewley T. Catenary tether shape analysis for a UAV - USV team. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Madrid, October, 1-5, 2018.
- [tan2013] Tan D-P., Ji S-M., and M-S. Jin. Intelligent computer-aided instruction modeling and a method to optimize study strategies for parallel robot instruction. *IEEE Trans. on Education*, 56(3), August 2013.
- [tanaka-w2002] Tanaka W. and others . Simplified kinematic calibration for a class of parallel mechanism. In *IEEE Int. Conf. on Robotics and Automation*, pages 483–488, Washington, May, 11-15, 2002.

- [tanaka-w2003] Tanaka W. and others . Calibration method by simplified measurement for parallel mechanism. In *11th ICAR*, pages 1781–1786, Coimbra, June 30- July 3, 2003.
- [tanaka-w2006] Tanaka W. and others . Calibration method for parallel mechanism using micro-grid pattern. In *IEEE Int. Conf. on Robotics and Automation*, pages 763–768, Orlando, May, 16-18, 2006.
- [tanaka88] Tanaka M. Motion and dynamics of flexible arm of a mast-type statically determinate truss. In *Proc. Computational Mechanics '88, Theory and Applications*, pages 42.iii.1–42.iii.4, Atlanta, GA, USA, April, 10-14, 1988.
- [tanaka90] Tanaka M. and others . Motion/configuration control of a truss-type parallel manipulator with redundancy. In *Japan-USA Symposium on Flexible Automation*, pages 329–336, ISCIE, Kyoto, 1990.
- [tanaka90-1] Tanaka M., Seguchi Y., and others . Kinematics of adaptive truss permitting nodal offset (configuration and workspace reach). In *First Joint USA/Japan Conf. on adaptive structure*, pages 691–714, Maui, Hawaii, November, 13-15, 1990.
- [tanaka92] Tanaka M. and Hanahara K. Simulation study of dynamic properties and nodal offset of truss-type parallel mechanism. In *IMACS/SICE Int. Symp. on Robotics, Mechatronics, and Manufacturing Systems*, pages 445–450, Kobe, September, 16-20, 1992.
- [tanaka94] Tanaka M. Large-scaled framed structure as parallel mechanism with hyper-redundancy. *Advanced Robotics*, 8(6):573–587, December 1994.
- [tanaka94-1] Tanaka M. Truss-type mechanism. *Advanced Robotics*, 8(6):599, December 1994.
- [tanase2012] Tanase I. and others . Workspace identification with neural network for an optimal designed 2-dof orientation parallel device. In *4th European Conf. on Mechanism Science (Eucomes)*, pages 159–167, Santander, September, 19-21, 2012.
- [tancredi94] Tancredi L. and Merlet J-P. Evaluation of the errors when solving the direct kinematics of parallel manipulators with extra sensors. In Lenarčič J. and Ravani B., editors, *ARK*, pages 439–448, Ljubljana, July, 4-6, 1994. Springer Verlag.
- [tancredi95] Tancredi L., Teillaud M., and Merlet J-P. Extra sensors data for solving the forward kinematics problem of parallel manipulators. In *9th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 2122–2126, Milan, August 30- September 2, 1995.
- [tancredi95-1] Tancredi L., Teillaud M., and Merlet J-P. Forward kinematics of a parallel manipulator with additional rotary sensors measuring the position of platform joints. In J-P. Merlet B. Ravani, editor, *Computational Kinematics*, pages 261–270. Kluwer, September, 4-6, 1995.
- [tancredi95-phd] Tancredi L. *De la simplification et la résolution du modèle géométrique direct des robots parallèles*. Ph.D. Thesis, École des Mines de Paris, Sophia, December, 20, 1995. **Keywords:** kinematics, forward kinematics with redundant sensors.
- [tancredi96] Tancredi L., Teillaud M., and Devillers O. Symbolic elimination for parallel manipulators. Research Report 2809, INRIA, February 1996.
- [tancredi99] Tancredi L. and Teillaud M. Application de la géométrie synthétique au problème de modélisation géométrique directe des robots parallèles. *Mechanism and Machine Theory*, 34(2):255–269, February 1999.
- [tanev98] Tanev T.K. Forward displacement analysis of a three legged four-degree-of-freedom parallel manipulator. In *ARK*, pages 147–154, Strobl, June 29- July 4, 1998.
- [tanev2002] Tanev T.K. and Rooney J. Rotation symmetry axes and the quality index in a 3D octahedral parallel robot manipulator system. In *ARK*, pages 29–38, Caldes de Malavalla, June 29- July 2, 2002.
- [tanev2006] Tanev T.K. Singularity analysis of a 4-dof parallel manipulator using geometric algebra. In *ARK*, pages 275–284, Ljubljana, June, 26-29, 2006.
- [tanev2008] Tanev T.K. Geometric algebra approach to singularity of parallel manipulators with limited mobility. In *ARK*, pages 39–48, Batz/mer, June, 23-26, 2008.

- [tang-l2014] Tang L. and others . Dynamic trajectory planning of planar two-dof redundantly actuated cable-suspended parallel robots. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Chicago, September, 14-18, 2014.
- [tang-l2020] Tang L. and others . Singularity analysis on a special class of cable-suspended parallel mechanisms with pairwise cable arrangement and actuation redundancy. *ASME J. of Mechanical Design*, 142, February 2020.
- [tang-t2020] Tang T., Fang H., and Zhang J. Hierarchical design, laboratory prototype fabrication and machining tests of a novel 5-axis hybrid serial-parallel kinematic machine tool. *Robotics and Computer-Integrated Manufacturing*, 64, 2020.
- [tang-t2021] Tang T. and others . Chebyshev inclusion function based interval kinetostatic modeling and parameter sensitivity analysis for Exechon-like parallel kinematic machines with parameter uncertainties. *Mechanism and Machine Theory*, 157, 2021.
- [tang-t2021-1] Tang T. and others . Type synthesis, unified kinematic analysis and prototype validation of a family of Exechon inspired parallel mechanisms for 5-axis hybrid kinematic machine tools. *Robotics and Computer-Integrated Manufacturing*, 72, 2021.
- [tang2002] Tang X., Yin W., and Wang J. A study of the accuracy of a novel 4-dof hybrid machine tool. In *3rd Chemnitz Parallelkinematik Seminar*, pages 509–523, Chemnitz, April, 23-25, 2002.
- [tang2011] Tang X. and Yao R. Dimensional design of the six-cable driven parallel manipulator of FAST. *ASME J. of Mechanical Design*, 133(11):111012–1/11, November 2011.
- [tang2014] Tang X. and others . Accuracy synthesis of a multi-level hybrid positioning mechanism for the feed support system in FAST. *Robotics and Computer-Integrated Manufacturing*, 30(5):565–575, October 2014.
- [tangxq2008] Tang X.Q. and Huang P. *Parallel manipulators, Towards new applications*, chapter The analysis and application of parallel manipulator for active reflector of FAST, pages 321–346. ITECH, April 2008. **Keywords:** 3 dof robot, applications.
- [tanikawa99] Tanikawa T. and Arai T. Development of a micro-manipulation system having a two-fingered micro-hand. *IEEE Trans. on Robotics and Automation*, 15(1):152–162, February 1999.
- [tannous2014] Tannous M., Caro S., and Goldsztejn A. Sensitivity analysis of parallel manipulators using an interval linearization method. *Mechanism and Machine Theory*, 71:93–114, January 2014.
- [taosun2016] Tao-Sun G.M. and others . Mobility analysis and kinematic synthesis of a novel 4-dof parallel manipulator. *Robotica*, 34(5):1010–1025, May 2016.
- [tarao2000] Tarao S., Inohira E., and Uchiyama M. Motion simulation using a high-speed parallel link mechanism. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Takamatsu, Japan, October 30- November 5, 2000.
- [tari2012] Tari H., Su H-J., and Hauenstein D. Classification and complete solution of the kinetostatics of a compliant Stewart–Gough platform. *Mechanism and Machine Theory*, 49:177–186, March 2012.
- [tavolieri2008] Tavolieri C., Ceccarelli M., and Merlet J-P. A workspace analysis of a fully constrained cable-based parallel manipulator by using interval analysis. In *Musme*, San Juan, Argentina, April, 8-12, 2008.
- [tavolieri2008-phd] Tavolieri C. *Design of a cable-based parallel manipulator for rehabilitation applications*. Ph.D. Thesis, University of Cassino, Cassino, October, 20, 2008. **Keywords:** wire robot, applications.
- [tchon2012] Tchoń K. and others . Motion planning for parallel robots with non-holonomic joints. In *ARK*, pages 115–122, Innsbruck, June, 25-28, 2012.
- [tchon2014] Tchoń K. and Jakubiak J. Motion planning of non-holonomic parallel orienting platform: a jacobian approach. In *ARK*, pages 95–103, Ljubljana, June 29- July 3, 2014.
- [teague95] Teague E.C. 1/n Feynman machines as a path to ultraminiaturisation? In *Proc. of the SPIE Conf. Microlithography and Metrology in MicroMachining*, pages 82–88, Austin, October, 23-24, 1995.

- [tempel2015] Tempel P., Schnelle F., Pott A., and Eberhard P. Design and programming for cable-driven parallel robots in the german pavilion at the expo 2015. *Machines*, 3(3):223–241, 2015.
- [tempel2017] Tempel P. and others . Estimating inertial parameters of suspended cable-driven parallel robots; use case on CoGiRo. In *IEEE Int. Conf. on Robotics and Automation*, pages 6093–6098, Singapore, 2017.
- [tempel2018] Tempel P., Trautwein F., and Pott A. Experimental identification of stress-strain material models of UHMWPE fiber cables for improving cable tension control strategies. In *ARK*, Bologna, July, 1-5, 2018.
- [tengfei2019] Tengfei T. and Jun Z. Conceptual design and kinetostatic analysis of a modular parallel kinematic machine-based hybrid machine tool for large aeronautic components. *Robotics and Computer-Integrated Manufacturing*, 57:1–16, 2019.
- [tesar89] Tesar D. and Butler M.S. A generalized modular architecture for robot structures. *Manufacturing review*, 2(2), June 1989.
- [thanh2012] Thanh D., T and others . Dynamics identification of kinematically redundant parallel robot using the direct search method. *Mechanism and Machine Theory*, 55:104–121, September 2012.
- [thayer98] Thayer D. and Vagners J. A look at the pole/zero structure of a Stewart platform using special coordinate basis. In *American Control Conference*, pages 1165–1169, Philadelphia, June, 24-26, 1998.
- [theingi2007] Theingi and others . Management of parallel-manipulator singularities using joint-coupling. *Advanced Robotics*, 21(5-6):583–600, 2007.
- [thomas-u2002] Thomas U., Maciuszek I., and Wahl F.M. A unified notation for serial, parallel, and hybrid kinematic structures. In *IEEE Int. Conf. on Robotics and Automation*, pages 2868–2873, Washington, May, 11-15, 2002.
- [thomas2002] Thomas F. and others . Uncertainty model and singularities of 3-2-1 wire-based tracking systems. In *ARK*, pages 107–116, Caldes de Malavalla, June 29- July 2, 2002.
- [thomas2004] Thomas F. Solving geometric constraints by iterative projections and backprojections. In *IEEE Int. Conf. on Robotics and Automation*, pages 1789–1794, New Orleans, April, 28-30, 2004.
- [thomas2020-mv] Thomas M. J., Joy M. L., and Sudheer A. P. Kinematic and dynamic analysis of a 3-PRUS spatial parallel manipulator. *Chinese J. of Mechanical Engineering*, 33(1):13, February 2020.
- [thompson96] Thompson C.J. and Campbell P.D. Tendon suspended platform robot, December, 17, 1996. United States Patent n° 5,585,707, McDonnell Douglas Corporation. **Keywords:** wire robot, applications, simulator, patent.
- [thornton88] Thornton G.S. The GEC Tetrabot-a new serial-parallel assembly robot. In *IEEE Int. Conf. on Robotics and Automation*, pages 437–439, Philadelphia, April, 24-29, 1988.
- [thurneysen2002] Thurneyssen M. and others . A new parallel kinematics for high-speed machine tools Hita STT. In *3rd Chemnitz Parallelkinematik Seminar*, pages 553–562, Chemnitz, April, 23-25, 2002.
- [tian-c2019] Tian C., Fang Y., and Ge Q.J. Design and analysis of a partially decoupled generalized parallel mechanism for 3T1R motion. *Mechanism and Machine Theory*, 140:211–232, 2019.
- [tian-c2020] Tian C. and Zhang D. A new family of generalized parallel manipulators with configurable moving platforms. *Mechanism and Machine Theory*, 153:211–232, 2020.
- [tian-c2021] Tian C. and others . Structure synthesis of reconfigurable generalized parallel mechanisms with configurable platforms. *Mechanism and Machine Theory*, 160, 2021.
- [tian-h2017] Tian H. and others . A 6-dof parallel bone-grinding robot for cervical disc replacement surgery. *Med Biol Eng Comput*, 55:2107–2121, 2017.
- [tian-hb2019] Tian H-B. and others . Stiffness analysis of a metamorphic parallel mechanism with three configurations. *Mechanism and Machine Theory*, 142, 2019.
- [tian2016] Tian W. and others . Kinematic calibration of a 3-DOF spindle head using a double ball bar. *Mechanism and Machine Theory*, 102:167–178, 2016.

- [tian2017] Tian Y. and others . A reconfigurable multi-mode mobile parallel robot. *Mechanism and Machine Theory*, 111:39–65, 2017.
- [tian2020] Tian W. and others . A systematic approach for accuracy design of lower-mobility parallel mechanism. *Robotica*, pages 2173–2188, 2020.
- [ting-y93] Ting Y., Tosunoglu S., and Freeman R. Actuator saturation avoidance for fault tolerant robot. In *32nd Conf. on Decision and Control*, pages 2125–2130, San Antonio, December, 15-17, 1993.
- [ting-y2004] Ting Y. and others . Modeling and control for a Gough-Stewart platform CNC machine. In *IEEE Int. Conf. on Robotics and Automation*, New Orleans, April, 28-30, 2004.
- [ting85] Ting K.L. and Tsai G.H. Mobility and synthesis of five-bar programmable linkages. In *9th Applied Mechanisms Conf.*, pages III.1–III.8, Kansas City, October 1985.
- [tischler98] Tischler C.R. and Samuel A.E. Predicting the slop of in-series/parallel manipulators caused by joint clearances. In *ARK*, pages 227–236, Strobl, June 29- July 4, 1998.
- [tischler2001] Tischler C.R., Andrew S., and Hunt K.H. Selecting multi-freedom multi-loop kinematic chain to suit a given task. *Mechanism and Machine Theory*, 36(8):925–938, August 2001.
- [titus2017] Titus A.B., Narayanan T., and Das G.P. Vision system for coconut farm cable robot. In *International Conference on Smart Technologies and Management for Computing, Communication, Controls, Energy and Materials (ICSTM)*, 2017.
- [tognon2018-phd] Tognon M. *Theory and Applications for Control and Motion Planning of Aerial Robots in Physical Interaction with particular focus on Tethered Aerial Vehicles*. Ph.D. Thesis, Université de Toulouse, Toulouse, July 2018. **Keywords:** applications,wire robot,aerial.
- [tol2002] Tol U.A., Clerc J-P., and Wiens G.J. Micro-macro approach for dexterity enhancement of PKM’s. In *Workshop on Fundamental Issues and Future Research Directions for Parallel Mechanisms and Manipulators*, pages 34–39, Québec, October, 3-4, 2002.
- [tonai90] Tonai S. and Matsushita S. Parallel link robot arm, September, 7, 1990. United States Patent n° 4,946,337. **Keywords:** planar robot,patent,mechanical architecture,2 dof robot.
- [tong2018] Tong Y. and He J. Dynamics and force regulation of fully constrained cable-driven parallel mechanism as a marine salvage device. In *Int. Conf. of Intelligent Robotic and Control Engineering (IRCE)*, 2018.
- [tong2020] Tong Y., Gosselin C., and Jiang H. Dynamic decoupling analysis and experiment based on a class of modified Gough-Stewart parallel manipulators with line orthogonality. *Mechanism and Machine Theory*, 143, 2020.
- [tonshoff98] Tönshoff K., Grendel H., and Kaak R. A hybrid manipulator for laser machining. In *First European-American Forum on Parallel Kinematic Machines*, Milan, August 31- September 1, 1998.
- [tonshoff98-1] Tönshoff K., Grendel H., and Schmidt A. A hybrid manipulator structure for laser machining. In *12th RoManSy*, pages 343–350, Paris, July, 6-9, 1998.
- [tonshoff98-2] Tönshoff K., Günther G., and Grendel H. Vergleiche betrachtung paralleler und hybrider Strukturen. In *New machine concepts for handling and manufacturing devices on the basis of parallel structures*, pages 249–270, Braunschweig, November, 10-11, 1998.
- [tonshoff2002] Tönshoff K., Grendel H., and Grotjahn M. Modelling and control of linear direct driven hexapod. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 335–350, Chemnitz, April, 23-25, 2002.
- [tonshoff2002-1] Tönshoff K. and others . Modelling of error effects on the new hybrid kinematic DUMBO structure. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 639–653, Chemnitz, April, 23-25, 2002.
- [tooyama2000] Tooyama T. and others . Development of parallel mechanism based milling machine HexaM. In *2nd Chemnitzer Parallelkinematik Seminar*, pages 331–341, Chemnitz, April, 12-13, 2000.
- [torras2006] Torras C., Thomas F., and Alberich-Carraminana M. Stratifying the singularity loci of a class of parallel manipulators. *IEEE Trans. on Robotics*, 22(1), February 2006.



- [torresmendez2017] Torres-Medez S.J. and others . Analytical workspace delineation of a translational underconstrained cable-based robot. In *International Conference on Electronics, Communications and Computers (CONIELECOMP)*, 2017.
- [tosi2010] Tosi D. and others . Cheope: A new reconfigurable redundant manipulator. *Mechanism and Machine Theory*, 45(4):611 – 626, 2010.
- [tourajizadeh2016] Tourajizadeh H. and Manteghi S. Design and optimal control of dual-stage Stewart platform using feedback-linearized quadratic regulator. *Advanced Robotics*, 30:1305–1321, 2016.
- [tourajizadeh2016-1] Tourajizadeh H. and Korayem M.H. Optimal regulation of a cable suspended robot equipped with cable interfering avoidance controller. *Advanced Robotics*, 30:1273–1287, 2016.
- [tourajizadeh2020] Tourajizadeh H. and Gholami O. Optimal control and path planning of a 3PRS robot using indirect variation algorithm. *Robotica*, 38:903–924, 2020.
- [toyama93] Toyama O., Uchiyama M., and Pierrot F. Parallel robot, March, 26, 1993. United States Patent n° 5,333,514, Toyoda. **Keywords:** mechanical architecture, patent.
- [toyoda2000] Kaisha Toyoda Kokikabushiki, Pierrot F., and Company O. Four degree of freedom parallel robot, September, 18, 2000. European Patent n° EP 1 084 802 A2. **Keywords:** patent, 4 dof robot.
- [toz2013] Toz M. and Kucuc S. Dextrous workspace optimization of an asymmetric six-degree-of-freedom Stewart-Gough platform type manipulator. *Robotics and Autonomous Systems*, 12(12):1516–1528, December 2013.
- [toz2014] Toz M. and Kucuc S. Dimensional optimization of 6-dof 3-CCC type asymmetric parallel manipulator. *Advanced Robotics*, 28:625–637, 2014.
- [toz2015] Toz M. and Kucuc S. Parallel manipulator software tool for design, analysis, and simulation of 195 GSP mechanisms. *Computer applications in Engineering Education*, 23(6):931–946, November 2015.
- [traslosheros2007] Traslosheros A. and others . Visual servoing using a parallel robot: preliminary results. In *IEEE/ASME international conference on advanced intelligent mechatronics*, Zurich, 2007.
- [traslosheros2007-1] Traslosheros A. and others . Visual servoing of a parallel robot system. In *IEEE International Symposium on Intelligent Signal Processing*, Alcalá de Henares, 2007.
- [traslosheros2010] Traslosheros A. and others . One camera in hand for kinematic calibration of a parallel robot. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Taipei, October, 18-22, 2010.
- [traslosheros2011] Traslosheros A. and others . Visual servoing for the Robotenis system: a strategy for a 3 dof parallel robot to hit a ping-pong ball. In *IEEE Conference on Decision and Control and European Control Conference*, Orlando, 2011.
- [trautwein2018] Trautwein F., Tempel P., and Pott A. A symbolic-numeric method to capture the impact of varied geometrical parameters on the translational workspace of a planar cable-driven parallel robot. In *ReMAR*, Delft, June, 20-22, 2018.
- [trawny2009] Trawny N. and others . 3D relative pose estimation from six distances. In *Robotics: Science and Systems*, Seattle, June 2009.
- [treib98] Treib T., Meier P., and Hebsacker M. Wachstumsgesetzmässigkeiten und einstellpotentiale parallel-kinematischer manipulatore. In *New machine concepts for handling and manufacturing devices on the basis of parallel structures*, pages 81–94, Braunschweig, November, 10-11, 1998.
- [treib2002] Treib T. Parallel kinematic machines in practice. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 63–66, Chemnitz, April, 23-25, 2002.
- [trevisani2006] Trevisani A., Gallina P., and Williams II R.L. Cable-direct-driven robot (CDDR) with passive SCARA support: Theory and simulation. *J. of Intelligent and Robotic Systems*, 46:73–94, 2006.
- [trevisani2012] Trevisani A. Experimental validation of a trajectory planning approach avoiding cable slackness and excessive tension in underconstrained translational planar cable-driven robots. In *1st Int. Conf. on cable-driven parallel robots (CableCon)*, pages 23–40, Stuttgart, September, 3-4, 2012.

- [trinkle2002] Trinkle J.C. and R.J. Milgram. Complete path planning for closed kinematic chains with spherical joints. *Int. J. of Robotics Research*, 21(9):773–789, September 2002.
- [tsai-ky2003] Tsai K-Y. and Huang K.D. The design of isotropic 6-DOF parallel manipulators using isotropy generators. *Mechanism and Machine Theory*, 38(11):1199–1214, November 2003.
- [tsai-ky2006] Tsai K-Y. and Lin J.C. Determining the compatible orientation workspace of Stewart-Gough parallel manipulators. *Mechanism and Machine Theory*, 41(10):1168–1184, October 2006.
- [tsai-ky2007] Tsai K-Y. and Lee T.K. 6-dof isotropic parallel manipulators with three PPSR or PRPS chains. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [tsai-ky2008] Tsai K-Y., Lin P.Y., and Lee T.K. 4R and 5R parallel manipulators that can reach maximum number of isotropic positions. *Mechanism and Machine Theory*, 43(1):68–79, January 2008.
- [tsai-ky2009] Tsai K-Y. and Lee T.K. 6-dof parallel manipulators with better dexterity, rotability, or singularity-free workspace. *Robotica*, 27(4):599–606, July 2009.
- [tsai-ky2014] Tsai K-Y., Lin J.C., and Lo Y. Six-dof parallel manipulators with maximal singularity-free joint space or workspace. *Robotica*, 32(3):401–411, May 2014.
- [tsai-ky2014-1] Tsai K-Y., Lo I-T., and Lin P.J. Compatible reachable workspaces of symmetrical Stewart-Gough parallel manipulators. *Mechanism and Machine Theory*, 77:111–121, 2014.
- [tsai-ms2003] Tsai M-S. and others . Direct kinematic analysis of a 3-PRS parallel mechanism. *Mechanism and Machine Theory*, 38(1):71–83, January 2003.
- [tsai-ms2010] Tsai M-S. and Yuan W-H. Inverse dynamics analysis for a 3-PRS parallel mechanism based on a special decomposition of the reaction forces. *Mechanism and Machine Theory*, 45(11):1491–1508, November 2010.
- [tsai-tc2004] Tsai T-C. and Hsu Y-L. Development of a parallel surgical robot with automatic bone drilling carriage for stereotactic neurosurgery. In *Int. Conf. on Systems, Man and Cybernetics*, The Hague, October, 10-13, 2004.
- [tsai93] Tsai L-W. and Tahmasebi F. Synthesis and analysis of a new class of six-degree-of-freedom parallel minimanipulators. *J. of Robotic Systems*, 10(5):561–580, July 1993.
- [tsai96] Tsai L-W., Walsh G.C., and Stamper R.E. Kinematics of a novel three dof translational platform. In *IEEE Int. Conf. on Robotics and Automation*, pages 3446–3451, Minneapolis, April, 24-26, 1996.
- [tsai96-1] Tsai L-W. Kinematics of a three-dof platform with three extensible limbs. In *ARK*, pages 401–410, Portoroz-Bernadin, June, 22-26, 1996.
- [tsai98] Tsai L-W. The jacobian analysis of a parallel manipulator using reciprocal screws. In *ARK*, pages 327–336, Strobl, June 29- July 4, 1998.
- [tsai98-1] Tsai L-W. The jacobian analysis of a parallel manipulator using reciprocal screws. Research Report 98-34, ISR, University of Maryland, 1998.
- [tsai2000] Tsai L-W. Solving the inverse dynamics of a Stewart-Gough manipulator by the principle of virtual work. *ASME J. of Mechanical Design*, 122(1):3–9, March 2000.
- [tsai2000-1] Tsai L-W. and Joshi S. Kinematics and optimization of a spatial 3-UPU parallel manipulator. *ASME J. of Mechanical Design*, 112(4):439–446, December 2000.
- [tsai2001] Tsai L-W. and Joshi S. Comparison study of architectures of four 3 degree-of-freedom translational parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 1283–1288, Seoul, May, 23-25, 2001.
- [tsai2002] Tsai L-W. and Joshi S. Kinematic analysis of 3-dof position mechanisms for use in hybrid kinematic machines. *ASME J. of Mechanical Design*, 124(2):245–253, June 2002.
- [tsumaki2012] Tsumaki Y., Ono F., and Tsukuda T. The 20-dof miniature humanoid MH-2, a wearable communication system. In *IEEE Int. Conf. on Robotics and Automation*, pages 3930–3935, Saint Paul, May, 14-18, 2012.

- [tsumaki2012-1] Tsumaki Y., Eguchi H., and Tsukuda T. A novel Delta-type parallel mechanism with wire-pulley. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 1567–1572, Vilamoura, October, 7-12, 2012.
- [tsumaki2014] Tsumaki Y. and others . Ultra-light forearm with a parallel wrist mechanism. In *IEEE/ASME Int. Conf. on Advanced Intelligent Mechatronics*, pages 1419–1423, Besancon, July, 8-11, 2014.
- [tu2018] Tu Y. and others . Optimal design of SINS’s Stewart platform bumper for restoration accuracy based on genetic algorithm. *Mechanism and Machine Theory*, 124:42–54, 2018.
- [tucan2017] Tucan P. and others . Development of a control system for an innovative parallel robot used in prostate biopsy. In *Int. Conf. on Control Systems and Computer Science*, 2017.
- [tunc2016] Tunc L.T. and Shaw J. Investigation of the effects of Stewart platform-type industrial robot on stability of robotic milling. *The International Journal of Advanced Manufacturing Technology*, pages 189–199, 2016.
- [tzafestas2002] Tzafestas S., Kostis M., and Pimenides T. Observer-based optimal control of flexible Stewart parallel robots. *J. of Intelligent and Robotic Systems*, 34(2):489–503, August 2002.
- [uchida2011] Uchida T. and McPhee J. Triangularizing kinematic constraint equations using gröbner bases for real-time dynamic simulation. *Multibody System Dynamics*, 25:335–356, 2011.
- [uchiyama92] Uchiyama M. and others . Design and control of a very fast 6 d.o.f. parallel robot. In *IMACS/SICE Int. Symp. on Robotics, Mechatronics, and Manufacturing Systems*, pages 473–478, Kobe, September, 16-20, 1992.
- [uchiyama94] Uchiyama M. Structures and characteristics of parallel manipulators. *Advanced Robotics*, 8(6):545–557, December 1994.
- [uchiyama94-1] Uchiyama M. A 6 d.o.f. parallel robot HEXA. *Advanced Robotics*, 8(6):601, December 1994.
- [uchiyama96] Uchiyama M., Miwa T., and Nenchev D.N. A very fast parallel robot to be applied to dextrous motion. In *World Automation Congress*, volume 3, pages 753–758, Montpellier, May, 28-30, 1996.
- [uchiyama2003] Uchiyama M. and Sato D. Dexterous motion design for DD parallel robot. In *ISRR*, Sienna, October, 19-22, 2003.
- [uchiyama2005] Uchiyama M., Tsumaki Y., and Yoon W-K. Design of a compact 6-dof haptic device to use parallel mechanisms. In *ISRR*, San-Francisco, October, 12-15, 2005.
- [ueland2021] Ueland E., T. Sauder., and Skjetne R. Optimal force allocation for overconstrained cable-driven parallel robots: continuously differentiable solutions with assessment of computational efficiency. *IEEE Trans. on Robotics*, 37(2):659–666, April 2021.
- [uhlar2008] Uhlar S. and Betsch P. *Parallel manipulators, New Developments*, chapter Conserving integrators for parallel manipulators, pages 75–107. ITECH, April 2008. **Keywords:** dynamics, planar robot.
- [ukidve2006] Ukidve C.S., McInroy J.E., and Jafari F. Orthogonal gough-stewart platforms with optimal fault tolerant manipulability. In *IEEE Int. Conf. on Robotics and Automation*, pages 3801–3806, Orlando, May, 16-18, 2006.
- [ukidve2008] Ukidve C.S., McInroy J.E., and Jafari F. *Parallel manipulators, Towards new applications*, chapter Quantifying and optimizing failure tolerance of a class of parallel manipulators, pages 45–68. ITECH, April 2008. **Keywords:** jacobian, safety.
- [unger88] Unger D. and others . Optimum stiffness study for a parallel link robot crane under horizontal force. In *2nd Int. Symp. on Robotics and Manufacturing, Research, Education, Applications*, pages 1037–1046, Albuquerque, 1988.
- [ur-rehman2009] Ur-Rehman R. and others . Kinematic and dynamic analysis of the 2-dof spherical wrist of Orthoglide 5-axis. In *3eme Congrès International Conception et Modélisation des Systèmes Mécaniques CMSM*, Hammamet, March, 16-18, 2009.

- [ur-rehman2010] Ur-Rehman R., Caro S., Chablat D., and Wenger P. Multi-objective path placement of parallel kinematics machines based on energy consumption, shaking forces and maximum actuator torques: application to the Orthoglide. *Mechanism and Machine Theory*, 45(8):1125–1141, August 2010.
- [ur-rehman2010-1] Ur-Rehman R. and others . Multiobjective design optimization of 3-PRR planar parallel manipulators. In *20th CIRP Design Conference*, Nantes, April 2010.
- [urizar2009] Urizar M. and others . Computing the configuration space for motion planning between assembly modes. In *Computational Kinematics*, pages 35–42, Duisburg, May, 6-8, 2009.
- [urizar2010] Urizar M. and others . Researching into non-singular transitions in the joint space. In *ARK*, pages 45–52, Piran, June 28- July 1, 2010.
- [urizar2012] Urizar M. and others . Assembly mode changing in the cuspidal analytic 3-RPR. *IEEE Trans. on Robotics*, 28(2):506–513, April 2012.
- [urizar2015] Urizar M. and others . Non singular transitions based design methodology for parallel manipulators. *Mechanism and Machine Theory*, 91:168–196, 2015.
- [vaca2012] Vaca R., Aranda J., and Thomas F. Simplified Voronoi diagrams for motion planning of quadratically-solvable Gough-Stewart platforms. In *ARK*, pages 157–164, Innsbruck, June, 25-28, 2012.
- [vafaiei2010] Vafaei A., Aref M.M., and Taghirad H.D. Integrated controller for an over-constrained cable driven parallel manipulator: KNTU CDRPM. In *IEEE Int. Conf. on Robotics and Automation*, pages 650–655, Anchorage, May, 3-8, 2010.
- [vafaiei2011] Vafaei A., Khosravi M.A., and Taghirad H.D. Modeling and control of cable driven parallel manipulators with elastic cables: singular perturbation theory. In *Intelligent Robotics and Applications*, pages 455–464, 2011.
- [vaida2015] Vaida C. and others . Kinematic analysis of an innovative medical parallel robot using Study parameters. In *4th Workshop on Medical and Service Robotics*, Nantes, July, 8-10, 2015.
- [vaida2016] Vaida C. and others . Development of a control system for a HEXA parallel robot. In *IEEE Int. Conf. on Automation, Quality and Testing, Robotics (AQTR)*, 2016.
- [valasek2002] Valasek M., Sulamanidze D., and Bauma V. Spherical joint with increased mobility for hexapod. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 285–294, Chemnitz, April, 23-25, 2002.
- [valasek2002-1] Valasek M., Belda K., and Florian M. Control and calibration of redundantly actuated parallel robot. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 411–427, Chemnitz, April, 23-25, 2002.
- [valasek2002-2] Valasek M. and others . Redundantly actuated parallel structures: principle, examples, advantages. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 993–1009, Chemnitz, April, 23-25, 2002.
- [valasek2002-3] Valasek M. Laser interferometer based calibration technique for multi-pods parallel structures. In *6th World Multiconference on Systemics, Cybernetics and Informatics*, pages 269–272, Orlando, July, 14-18, 2002.
- [valasek2005] Valasek M. and others . Design-by-optimization and control of redundantly actuated parallel kinematics Sliding Star. *Multibody System Dynamics*, 14:251–267, 2005.
- [valasek2005-1] Valasek M. and others . Tractable treatment of design by multiobjective optimization – parallel kinematics case study. *Multibody System Dynamics*, 13:143–174, 2005.
- [valasek2007] Valasek M., Sika Z., and Hamrle V. From dexterity to calibrability of parallel kinematical structures. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [vallery2013] Vallery H. and others . Multidirectional transparent support for overground gait training. In *IEEE Int. Conf. Rehabilitation Robotics*, Seattle, June, 24-26, 2013.
- [valles2017] Vallés M. and others . A 3-prs parallel manipulator for ankle rehabilitation: towards a low-cost robotic rehabilitation. *Robotica*, 35:1939–1957, 2017.
- [vanderwijk2009] Van der Wijk V. and Herder J.L. Dynamic balancing of Clavel’s Delta robot. In *Computational Kinematics*, Duisburg, May, 6-8, 2009.

- [vanderwijk2013] Van der Wijk V. and others . Design and experimental evaluation of a dynamically balanced redundant planar 4-RRR parallel manipulator. *Int. J. of Robotics Research*, 32(6):744–759, May 2013.
- [vanneste2020] Vanneste F. and others . Anisotropic soft robots based on 3d printed meso-structured materials: design, modeling by homogenization and simulation. *IEEE Robotics and Automation Letters*, 5(2):2380–2386, 2020.
- [vansilfhout99] Van Silfhout R.G. High precision hydraulic Stewart platform. *Review of Scientific Instruments*, 70(8):3488–3494, August 1999.
- [varcmin2002] Varcmin J.U., Beckmann G., and Kohn N. Architecture of a realtime communication network for parallel robots. In *1st Int. Colloquium, Collaborative Research Centre 562*, pages 183–198, Braunschweig, May, 29-30, 2002.
- [varedi2017] Varedi-Koulai S.M., Daniali H.M., and Farajtaba M. The effects of joint clearance on the dynamics of the 3RRR planar parallel manipulator. *Robotica*, 35:1223–1242, 2017.
- [vareilles2002] Vareilles E. and others . Modelling and simulating the dynamic behaviour of a high speed machine tool. In *2nd NCG Application Conf. on Parallel Kinematics Machine*, pages 785–805, Chemnitz, April, 23-25, 2002.
- [vartholomeos2005] Vartholomeos P. and Papadopoulos E. Analysis and design of a novel mini-platform employing vibration micro-motors. In *IEEE Int. Conf. on Robotics and Automation*, pages 3638–3643, Barcelona, April, 19-22, 2005.
- [varziri2007] Varziri M.S and Notash L. Kinematic calibration of a wire-actuated parallel robot. *Mechanism and Machine Theory*, 42(8):960–976, August 2007.
- [vashista2014] Vashista V., Jin X., and Agrawal S.K. Active tethered pelvic assist device (A-TPAD) to study force adaptation in human walking. In *IEEE Int. Conf. on Robotics and Automation*, Hong-Kong, 7 August 31- June , 2014.
- [ventura2002] Ventura Assuncao J.M. and Schumacher W. Position and force control of parallel robots. In *1st Int. Colloquium, Collaborative Research Centre 562*, pages 213–228, Braunschweig, May, 29-30, 2002.
- [verhoeven98] Verhoeven R., Hiller M., and Tadoroko S. Workspace, stiffness, singularities and classification of tendon driven Stewart platforms. In *ARK*, pages 105–114, Strobl, June 29- July 4, 1998.
- [verhoeven2000] Verhoeven R. and Miller M. Estimating the controllable workspace of tendon-based Stewart platforms. In *ARK*, pages 277–284, Piran, June, 25-29, 2000.
- [verhoeven2002] Verhoeven R. and Miller M. Tension distribution in tendon-based Stewart platform. In *ARK*, pages 117–124, Caldes de Malavalla, June 29- July 2, 2002.
- [verhoeven2004] Verhoeven R. *Analysis of the workspace of tendon-based Stewart platforms*. Ph.D. Thesis, University of Duisburg-Essen, Duisburg, 2004. **Keywords:** wire robot, workspace.
- [vermeiren2012] Vermeiren L. and others . Motion control of planar parallel robot using the fuzzy descriptor system approach. *ISA Transactions*, 51:596–608, 2012.
- [verner2005] Verner M., Xi F., and Mechefske C. Optimal calibration of parallel kinematic machines. *ASME J. of Mechanical Design*, 125(1):62–69, January 2005.
- [vertechy2002] Vertechy R., Dunlop G.R., and Parenti-Castelli V. An accurate algorithm for the real-time solution of the direct kinematics of 6-3 Stewart platform manipulators. In *ARK*, pages 369–378, Caldes de Malavalla, June 29- July 2, 2002.
- [vertechy2005] Vertechy R. and Parenti-Castelli V. Real-time direct position analysis of parallel spherical wrists by using extra sensors. *ASME J. of Mechanical Design*, 128(1):288–294, January 2006.
- [vertechy2006] Vertechy R. and Parenti-Castelli V. Synthesis of 2-dof spherical fully parallel mechanisms. In *ARK*, pages 385–394, Ljubljana, June, 26-29, 2006.

- [vertechy2007] Vertechy R. and Parenti-Castelli V. Static and stiffness analyses of a class of over-constrained parallel manipulators with legs of type US and UPS. In *IEEE Int. Conf. on Robotics and Automation*, pages 561–567, Roma, April, 10-14, 2007.
- [vertechy2008] Vertechy R. and Parenti-Castelli V. *Parallel manipulators, Towards new applications*, chapter Robust, fast and accurate solution of the direct position analysis of parallel manipulators by using extra-sensors, pages 133–154. ITECH, April 2008. **Keywords:** forward kinematics with redundant sensors.
- [vertechy2009] Vertechy R. and Parenti-Castelli V. Kinematic analysis of partially decoupled fully parallel manipulators of type 5-5 and 4-5. *Robotica*, 27(2):235–240, March 2009.
- [vertechy2010] Vertechy R. and others . Parallel robot with antagonistic dielectric elastomer actuation for human-machine interaction. In *ARK*, pages 127–136, Piran, June 28- July 1, 2010.
- [viegas2017] Viegas C., Tavakoli M., and T. de Almeida A. A novel grid-based reconfigurable spatial parallel mechanism with large workspace. *Mechanism and Machine Theory*, 115:149–167, September 2017.
- [viegas2017-2] Viegas C., Daney D., Tavakoli M., and T. de Almeida A. Performance analysis and design of parallel kinematic machines using interval analysis. *Mechanism and Machine Theory*, 117:218–236, September 2017.
- [villarreal2013] Villarreal-Cervantes M.G. and others . Robust structure-control design approach for mechatronic systems. *IEEE/ASME Trans. on Mechatronics*, 18(5), October 2013.
- [villarreal2016] Villarreal-Cervantes M.G. and Alvarez-Gallegos J. Off-line PID control tuning for a planar parallel robot using DE variants. *Expert Systems With Applications*, 64, 2016.
- [villgrattner2008] Villgrattner T. and Ulbrich H. Piezo-driven two-degree-of-freedom camera orientation system. In *IEEE Int. Conf. on Industrial Technology*, Chengdu, April, 21-24, 2008.
- [villgrattner2009] Villgrattner T., Thümmel T., and Ulbrich H. Light-weight high dynamic camera orientation system. In *Computational Kinematics*, pages 307–314, Duisburg, May, 6-8, 2009.
- [villgrattner2010] Villgrattner T. and Ulbrich H. Optimization and dynamic simulation of a parallel three degrees-of-freedom camera orientation system. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 2829–2836, Taipei, October, 18-22, 2010.
- [villgrattner2011] Villgrattner T. and Ulbrich H. Design and control of a compact high dynamic camera orientation system. *IEEE/ASME Trans. on Mechatronics*, 16(2):221–231, April 2011.
- [vischer95] Vischer P. Argos: a novel parallel spherical structure. Research Report 95-03, EPFL, Lausanne, Suisse, March, 25, 1995.
- [vischer96-phd] Vischer P. *Improving the accuracy of parallel robots*. Ph.D. Thesis, EPFL, Lausanne, 1996. **Keywords:** calibration.
- [vischer98] Vischer P. and Clavel R. Kinematic calibration of the parallel Delta robot. *Robotica*, 16(2):207–218, March - April, 1998.
- [vischer2000] Vischer P. and Clavel R. Argos: a novel 3-dof parallel wrist mechanism. *Int. J. of Robotics Research*, 19(1):5–11, January 2000.
- [vischer2000-1] Vischer P. and Clavel R. Kinematic calibration of the parallel Argos mechanism. *Robotica*, 18(6):589–599, November 2000.
- [viscomi94] Viscomi B.V., Michalerya W.D., and Lu L-W. Automated construction in the ATLSS integrated building systems. *Automation in Construction*, 3(1):35–43, May 1994.
- [vissiere2019] Vissière A. and others . Resolution evaluation of 6-degree-of-freedom precision positioning systems: Definitions and apparatus. *Measurement*, 152, February 2019.
- [vitzewitz2009] V. Zitzewitz J. and others . A versatile wire robot concept as a haptic interface for sport simulation. In *IEEE Int. Conf. on Robotics and Automation*, pages 313–318, Kobe, May, 14-16, 2009.

- [vivas2003] Vivas A., Poignet P., and Pierrot F. Predictive functional control for a parallel robot. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Las Vegas, October 2003.
- [vivas2003-1] Vivas A. and others . Experimental dynamic identification of a fully parallel robot. In *IEEE Int. Conf. on Robotics and Automation*, Taipei, September, 14-19, 2003.
- [vivas2005] Vivas A. and Poignet P. Predictive functional control of a parallel robot. *Control Eng. Practice*, 13(7):863–874, July 2005.
- [vlachos2010] Vlachos K. and Papadopoulos E. Control design and allocation of an over-actuated triangular floating platform. In *IEEE Int. Conf. on Robotics and Automation*, pages 3739–3744, Anchorage, May, 3-8, 2010.
- [voglewede2002] Voglewede P.A. and Ebert-Uphoff I. Two viewpoints on the unconstrained motion of parallel manipulators at or near singular configurations. In *IEEE Int. Conf. on Robotics and Automation*, pages 503–510, Washington, May, 11-15, 2002.
- [voglewede2004] Voglewede P.A. and Ebert-Uphoff I. Measuring ”closeness” to singularities for parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 4539–4544, New Orleans, April, 28-30, 2004.
- [voglewede2004-1] Voglewede P.A. and Ebert-Uphoff I. Application of workspace generation techniques to determine the unconstrained motion of parallel manipulators. *ASME J. of Mechanical Design*, 126(2):283–290, March 2004.
- [voglewede2005] Voglewede P.A. and Ebert-Uphoff I. Application of the antipodal grasp theorem to cable-driven robots. *IEEE Trans. on Robotics*, 21(4):713–718, August 2005.
- [vonasek2013] Vonásek V. and Saska M. and Pfeucil L. Motion planning for a cable driven parallel multiple manipulator emulating a swarm of MAVs. In *9th International Workshop on Robot Motion and Control*, Wasowo, July, 13-15, 2013.
- [vose2013] Vose T.H. and others . Modeling, design and control of 6 dof flexure-based parallel mechanism for vibratory manipulation. *Mechanism and Machine Theory*, 64:111–130, June 2013.
- [voss2012] Voss K.H.J., Van Der Wijkv V., and Herder J.L. Investigation of a cable-driven parallel mechanism for interaction with a variety of surfaces, applied to the cleaning of free-form buildings. In *ARK*, pages 261–268, Innsbruck, June, 25-28, 2012.
- [voss2012-1] Voss K.H.J., Van Der Wijkv V., and Herder J.L. A cable-driven mechanism for the interaction with hemispherical surfaces. In *4th European Conf. on Mechanism Science (Eucomes)*, pages 409–417, Santander, September, 19-21, 2012.
- [vu2017] Vu.D-S. and others . On the design of a three-dof cable-suspended parallel robot based on a parallelogram arrangement of the cables. In *3rd Int. Conf. on cable-driven parallel robots (CableCon)*, Québec, 2017.
- [vulliez2018] Vulliez M., Zeghloul S., and Khatib O. Design strategy and issues of the Delthaptic, a new 6-DOF parallel haptic device. *Mechanism and Machine Theory*, 128, 2018.
- [vulliez2018-phd] Vulliez M. *Le Delthaptic, un nouveau dispositif haptique parallèle polyvalent à six degrés de liberté actifs*. Ph.D. Thesis, Université de Poitiers, Poitiers, July 2018. **Keywords:** mechanical architecture, haptic device.
- [vitzewitz2010] V. Zitzewitz J. and others . Forward kinematics of redundantly actuated, tendon-based robots. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 2289–2294, Taipei, October, 18-22, 2010.
- [vitzewitz2012] V. Zitzewitz J. and others . Use of passively guided deflection units and energy storing elements to increase the application range of wire robots. In *1st Int. Conf. on cable-driven parallel robots (CableCon)*, pages 167–184, Stuttgart, September, 3-4, 2012.
- [vitzewitz2013] V. Zitzewitz J. and others . A reconfigurable, tendon-based haptic interface for research into human-environment interactions. *Robotica*, 31(3):441–453, 2013.
- [wada96] Wada B.K. and others . Vibration isolation, suppression and steering (VISS). In *6th Int. Conf. on Adaptive Structures*, pages 527–535, Lancaster, 1996.

- [waldron87] Waldron K.J. and Hunt K.H. Series-parallel dualities in actively coordinated mechanisms. In *4th ISRR*, pages 175–182, Cambridge, August, 9-14, 1987. MIT Press.
- [waldron89] Waldron K.J., Raghavan M., and Roth B. Kinematics of a hybrid series-parallel manipulation system. *J. of Mechanisms, Transmissions and Automation in Design*, 111(2):211–221, June 1989.
- [waldron91] Waldron K.J. and Hunt K.H. Series-parallel dualities in actively coordinated mechanisms. *Int. J. of Robotics Research*, 10(2):473–480, April 1991.
- [wampler92] Wampler C. and Arai T. Calibration of robots having kinematic closed-loops using non-linear least squares estimator. In *IFTOMM-jc Conf.*, pages 153–158, Nagoya, September, 24-26, 1992.
- [wampler94] Wampler C.W. Forward displacement analysis of general six-in-parallel (Stewart) platform manipulators using soma coordinates. Research Report 8179, GM, May 1994.
- [wampler95] Wampler C.W., Hollerbach J.M., and Arai T. An implicit loop method for kinematic calibration and its application to closed-chain mechanisms. *IEEE Trans. on Robotics and Automation*, 11(5):710–724, October 1995.
- [wampler96] Wampler C.W. Forward displacement analysis of general six-in-parallel SPS (Stewart) platform manipulators using soma coordinates. *Mechanism and Machine Theory*, 31(3):331–337, April 1996.
- [wampler2004] Wampler C.W. Displacement analysis of spherical mechanism having three or fewer loops. *ASME J. of Mechanical Design*, 126(1):93–100, January 2004.
- [wan2016] Wan S. and Xu Q. Design and analysis of a new compliant XY micropositioning stage based on Roberts mechanism. *Mechanism and Machine Theory*, 95:125–139, 2016.
- [wang-b2022] Wang B., Cardou P., and Caro S. An approach for predicting the calibration accuracy in planar cable-driven parallel robots. In *ARK*, Bilbao, June, 26-30, 2022.
- [wang-b2023] Wang B., Cardou P., and Caro S. An approach for predicting the calibration accuracy in planar cable-driven parallel robots and experiment validation. *Meccanica*, 58:2177–2196, 2023.
- [wang-c2013] Wang C. and others . Design and kinematical performance analysis of a 3- R US/ R RR redundantly actuated parallel mechanism for ankle rehabilitation. *J. of Mechanisms and Robotics*, 5(4), November 2013.
- [wang-c2015] Wang C. and others . Design and kinematic analysis of redundantly actuated parallel mechanisms for ankle rehabilitation. *Robotica*, 33(2):366–384, February 2015.
- [wang-c2016] Wang C. and others . Investigation on active vibration isolation of a Stewart platform with piezoelectric actuators. *Journal of Sound and Vibration*, 383:1–19, 2016.
- [wang-c2017] Wang C. and others . Novel 2R3T and 2R2T parallel mechanisms with high rotational capability. *Robotica*, 35:401–418, 2017.
- [wang-c2021] Wang C. and others . A novel index to evaluate the mapping of parallel mechanisms from internal to external wrenches. *Mechanism and Machine Theory*, 155, 2021.
- [wang-d2014] Wang D., Fan R., and Chen W. Performance enhancement of a three-degree-of-freedom parallel tool head via actuation redundancy. *Mechanism and Machine Theory*, 71:142–162, January 2014.
- [wang-d2018] Wang D., Wu J., and Wang L. Research on the error transfer characteristics of a 3-dof parallel tool head. *Robotics and Computer-Integrated Manufacturing*, 50:266–275, 2018.
- [wang-fy94] Wang F-Y. and Lever P.J.A. A mobile vehicle for resource prospecting and site certification. In *ISRAM*, pages 81–86, Hawai, August, 15-17, 1994.
- [wang-h2009] Wang H. and others . Configuration and isotropy study of a novel fully pre-stressed and double-layer six-component force/torque sensor. In *IEEE Int. Conf on Mechatronics and Automation*, pages 3693–3698, Changchun, August, 9-12, 2009.
- [wang-h2010] Wang H. and others . Output error bound prediction of parallel manipulators based on the level set method. *Mechanism and Machine Theory*, 45(8):1153–1170, August 2010.



- [wang-h2017] Wang H. and others . Parameter optimization of heavy-load parallel manipulator by introducing stiffness distribution evaluation index. *Mechanism and Machine Theory*, 108:244–259, 2017.
- [wang-h2017-1] Wang H. and others . Finding measurement configuration for accurate calibration: verification with a cable-driven parallel robot. *IEEE Trans. on Robotics*, 33(5):1156–1189, October 2017.
- [wang-h2019] Wang H. and others . Conceptual design and dimensional synthesis of a novel parallel mechanism for lower-limb rehabilitation. *Robotica*, 37:469–480, 2019.
- [wang-h2019-1] Wang H. and others . Exact kinematic modeling and identification of reconfigurable cable-driven robots with dual-pulley cable guiding mechanisms. *IEEE/ASME Trans. on Mechatronics*, 24(2), April 2019.
- [wang-js2007] Wang J.S. and others . Error analysis on a tripod parallel machine tool based on D-H parameters differential transform. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [wang-k2022] Wang K. and others . A repelling-screw-based approach for the construction of generalized jacobian matrices for nonredundant parallel manipulators. *Mechanism and Machine Theory*, 176, 2022.
- [wang-l2017] Wang L., Xu H., and Guan L. Optimal design of a 3-PUU parallel mechanism with 2R1T dofs. *Mechanism and Machine Theory*, 114:190–203, 2017.
- [wang-l2019] Wang L. and others . Analysis and optimization of a novel planar 5R parallel mechanism with variable actuation modes. *Robotics and Computer-Integrated Manufacturing*, 56:178–190, 2019.
- [wang-l2019-1] Wang L. and others . Worskapce analysis of cable parallel manipulator for side net cleaning of deep sea fishing ground. In *4th Int. Conf. on cable-driven parallel robots (CableCon)*, Cracow, June 30- July 4, 2019.
- [wang-l2020] Wang L., Chang Y., and Zhu H. Internal model control and experimental study of ankle rehabilitation robot. *Robotica*, 38:940–956, 2020.
- [wang-l2020-1] Wang L. and others . Velocity planning for astronaut virtual training robot with high-order dynamic constraints. *Robotica*, 38:2121–2137, 2020.
- [wang-l2020-2] Wang L. and others . Design and analysis of novel 2R1T generalized parallel mechanisms with large rotational angles. *Mechanism and Machine Theory*, 150, 2020.
- [wang-l2023] Wang L., Fang Y., and Zhang D. Design of 4-dof hybrid parallel robots with an integrated three-fingered robot end effector. *Mechanism and Machine Theory*, 189, 2023.
- [wang-lct93] Wang L.C.T. and Chen C.C. On the numerical kinematic analysis of general parallel robotic manipulators. *IEEE Trans. on Robotics and Automation*, 9(3):272–285, June 1993.
- [wang-lct94] Wang L.C.T. and Chen C.C. On the dynamic analysis of a general parallel robotic manipulators. *Int. J. of Robotics and Automation*, 9(2):81–87, 1994.
- [wang-lct98] Wang L-C.T. and Hsieh J-H. Extreme reaches and reachable workspace analysis of general parallel robotic manipulator. *J. of Robotic Systems*, 5(3):145–159, 1998.
- [wang-lct2007] Wang L.C.T. and Ohen K-T. Local rolling abd tilting capability analysis of fully parallel linear actuated platform-type manipulators. *Advanced Robotics*, 21(8):931–960, 2007.
- [wang-lp2011] Wang L-P. and others . Kinematic calibration of the 3-dof parallel module of a 5 axis hybrid milling machine. *Robotica*, 29(4):535–546, July 2011.
- [wang-m2015] Wang M. and Ceccarelli M. Topology search of 3-dof translation parallel manipulators. *Chinese J. of Mechanical Engineering*, 28(4), 2015.
- [wang-m2021] Wang M. and others . Evaluation of the kinematic performance of a 3-RRRS parallel mechanism. *Robotica*, 39(606-617), 2021.
- [wang-qm2003] Wang Q-M., Wang J., Liu X-J, and Zhang H. Kinematic and dynamic analysis of a new cylindrical 3-dof parallel manipulator. In *ASME Design Engineering Technical Conference*, Montréal, September 29-October 2, 2002.

- [wang-qwd-2001] Wang Q.W.D. and Tan M. Characterization of the analytical boundary of the workspace for 3-6 SPS parallel manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 3755–3759, Seoul, May, 23-25, 2001.
- [wang-r-2017] Wang R. and Zhang X. Optimal design of a planar parallel 3-DOF nanopositioner with multi-objective. *Mechanism and Machine Theory*, 112:61–83, 2017.
- [wang-s98] Wang S. and others . Kinematics and force analysis of a 6 d.o.f. parallel mechanism with elastic joints. In *ARK*, pages 87–96, Strobl, June 29- July 4, 1998.
- [wang-sc2003] Wang S-C. and others . Kinematics and dynamics of a 6 degree-of-freedom fully parallel manipulator with elastic joints. *Mechanism and Machine Theory*, 38(5):439–461, May 2003.
- [wang-sm-2002] Wang S.M. and Ehmann K.F. Error model and accuracy analysis of a six-dof Stewart platform. *ASME Journal of Manufacturing Science and Engineering*, 124(2):286–295, May 2002.
- [wang-x-2005] Wang X. and Mills J.K. Active control of configuration-dependent linkage vibration with application to a planar parallel platform. In *IEEE Int. Conf. on Robotics and Automation*, pages 4338–4343, Barcelona, April, 19-22, 2005.
- [wang-x-2006] Wang X. and Mills J.K. Dynamic modeling of a flexible-link planar parallel platform using a substructuring approach. *Mechanism and Machine Theory*, 41(6):671–687, June 2006.
- [wang-x-2006-1] Wang X. and Mills J.K. Dual-modal control of configuration-dependent linkage vibration in a smart parallel manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 3544–3549, Orlando, May, 16-18, 2006.
- [wang-x-2006-2] Wang X. and Mills J.K. Modal control design of configuration-dependent linkage vibration in a parallel robot through experimental identification. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 3225–3230, Beijing, October, 9-15, 2006.
- [wang-x-2008] Wang X., Baron L., and Cloutier G. Topology of serial and parallel manipulators and topological diagrams. *Mechanism and Machine Theory*, 43(6):754–770, June 2008.
- [wang-x-2008-1] Wang X., Baron L., and Cloutier G. Topological and geometrical synthesis of three-degree-of-freedom fully parallel manipulators by instantaneous kinematics. *ASME J. of Mechanical Design*, 130(3):032301–1/8, March 2008.
- [wang-x-2008-2] Wang X. and Baron L. *Parallel manipulators, New Developments*, chapter Topology and geometry of serial and parallel manipulators, pages 57–74. ITECH, April 2008. **Keywords:** mechanical architecture, structural synthesis.
- [wang-x-2018] Wang X., Cao G., and Van Horssen W.T. Dynamic simulation of multi-cable driven parallel suspension platform with slack cables. *Mechanism and Machine Theory*, 126:329–343, 2018.
- [wang-x-2021] Wang X., Wu J., and Wang Y. Dynamics evaluation of 2UPU/SP parallel mechanism for a 5-dof hybrid robot considering gravity. *Robotics and Autonomous Systems*, 135, 2021.
- [wang-y99] Wang Y. Workspace analysis of a novel closed-chain manipulator. Master’s thesis, Case Western Reserve University, 1999. **Keywords:** workspace, 6 dof robot, trajectory planning.
- [wang-y2000] Wang Y., Newman W.S., and Stoughton R.S. Workspace analysis of the Paradex robot-a novel, closed-chain kinematically redundant manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 2392–2397, San Francisco, April, 24-28, 2000.
- [wang-y2002] Wang Y. and G.S. Chirikjian. A divide-and-conquer method for inverse kinematics of hyper-redundant manipulators. In *ARK*, pages 407–414, Caldes de Malavalla, June 29- July 2, 2002.
- [wang-y2006] Wang Y. and G.S. Chirikjian. Propagation of errors in hybrid manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 1848–1853, Orlando, May, 16-18, 2006.
- [wang-y2012] Wang Y. and others . Hyperstatic analysis of a fully pre-stressed six-axis force/torque sensor. *Mechanism and Machine Theory*, 57:84–94, November 2012.

- [wang-y2019] Wang Y. and others . Kinematic analysis and optimum design of a novel 2PUR-2RPU parallel robot. *Mechanism and Machine Theory*, 139, 2019.
- [wang-y2020] Wang Y. and others . Sliding mode robust control of a wire-driven parallel robot based on HJI theory and a disturbance observer. *IEEE Access*, 2020.
- [wang-yx2005] Wang Y-X. and Wang Y-M. Configuration bifurcations analysis of six degree-of-freedom symmetrical Stewart parallel mechanism. *ASME J. of Mechanical Design*, 127(1):70–77, January 2005.
- [wang-yx2008] Wang Y-X. and Li Y-T. Disturbed configuration characteristics of Gough-Stewart parallel manipulators at singular points. *ASME J. of Mechanical Design*, 130(2):022304–1/9, February 2008.
- [wang-yx2008-1] Wang Y-X., Li Y-T., and Pan S-X. Modified disturbance function method for a 6-6 Gough-Stewart parallel manipulator to traverse the singularity hypersurface. *ASME J. of Mechanical Design*, 130(5):052305–1/8, May 2008.
- [wang-yy2007] Wang Y.Y., Huang T., and Chetwynd D.G. Semi-analytical approach for stiffness estimation of PKM having complex machine frames. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [wang-zhe2001] Wang Z. and others . A study on workspace, boundary workspace analysis and workpiece positioning for parallel machine tools. *Mechanism and Machine Theory*, 36(6):605–622, June 2001.
- [wang-zhe2009] Wang Z. and others . Forward kinematics analysis of six-dof Stewart platform using PCA and PNM algorithm. *Industrial Robot*, 36(5):448–460, 2009.
- [wang-zhi2006] Wang Z. and Ghorbel F.H. Control of closed kinematic chains using a singularly perturbed dynamics model. *ASME J. of Mechanical Design*, 128(1):142–151, March 2006.
- [wang-zhi2020] Wang Z., Zhang W., and Ding X. Design and analysis of a novel mechanism with a two-dof remote centre of motion. *Mechanism and Machine Theory*, 153, 2020.
- [wang-zho2010] Wang Z. and others . A unified algorithm to determine the reachable and dexterous workspace of parallel manipulators. *Robotics and Computer-Integrated Manufacturing*, 26(5):454–460, October 2010.
- [wang93] Wang J. and Masory O. On the accuracy of a Stewart platform-part I: The effect of manufacturing tolerances. In *IEEE Int. Conf. on Robotics and Automation*, pages 114–120, Atlanta, May, 2-6, 1993.
- [wang98] Wang J. and Gosselin C.M. Static balancing of spatial six-degree-of-freedom parallel mechanisms with revolute actuators. In *ASME Design Engineering Technical Conference*, Atlanta, September, 13-16, 1998.
- [wang98-1] Wang J. and Gosselin C.M. A new approach for the dynamic analysis of parallel manipulators. *Multibody System Dynamics*, 2(3):317–334, September 1998.
- [wang98-2] Wang J. and Gosselin C.M. Kinematic analysis and singularity loci of spatial four-degree-of-freedom parallel manipulators using a vector formulation. *ASME J. of Mechanical Design*, 120(4):555–558, December 1998.
- [wang99] Wang J. and Gosselin C.M. Static balancing of spatial three-degree-of-freedom parallel mechanisms. *Mechanism and Machine Theory*, 34(3):437–452, April 1999.
- [wang2002] Wang J. and Gosselin C.M. Singularity analysis and design of kinematically redundant parallel mechanism. In *ASME Design Engineering Technical Conference*, Montréal, September 29- October 2, 2002.
- [wang2004] Wang J. and Gosselin C.M. Singularity loci of a special class of spherical 3-dof parallel mechanisms with prismatic actuators. *ASME J. of Mechanical Design*, 126(2):319–326, March 2004.
- [wang2004-1] Wang J. and Gosselin C.M. Kinematic analysis and design of kinematically redundant parallel mechanisms. *ASME J. of Mechanical Design*, 126(1):109–118, January 2004.
- [wang2007] Wang J. and others . Simplified strategy of the dynamic model of a 6-UPS parallel kinematic machine for real-time control. *Mechanism and Machine Theory*, 42(9):1119–1140, September 2007.

- [wang2007-1] Wang J., Liu X.-J., and Wu C. *Industrial Robotics, Theory, Modelling and Control*, chapter On the analysis and kinematic design of a novel 2-dof translational parallel robot, pages 265–300. pro literatur Verlag, January 2007. **Keywords:** 2 dof robot, mechanical architecture.
- [wang2009] Wang J. and others . Workspace and singularity analysis of a 3-dof planar parallel manipulator with actuation redundancy. *Robotica*, 27(1):51–57, January 2009.
- [wang2009-1] Wang J., Liu X., and Wu C. Optimal design of a new spatial 3-dof parallel robot with respect to a frame-free index. *Science in China, Series E: Technological Sciences*, 52(4):986–999, April 2009.
- [wang2009-2] Wang J. and others . Dynamic feed-forward control of a parallel kinematic machine. *Mechatronics*, 19:313–324, 2009.
- [wang2010] Wang J., Wu C., and Liu X.-J. Performance evaluation of parallel manipulators: motion/force transmissibility and its index. *Mechanism and Machine Theory*, 45(10):1462–1476, October 2010.
- [wang2013] Wang J., Han W., and H. Lin. Femoral fracture reduction with a parallel manipulator robot on a traction table. *Int J Med Robotics Comput Assist Surg*, 9:464–471, 2013.
- [wangj-2003] Wang J. and Liu X.-J. Analysis of a novel cylindrical 3-dof parallel robot. *Robotics and Autonomous Systems*, 42(1):31–46, January 2003.
- [wangl-2006] Wang L., Xi F., and Zhang D. A parallel robotic attachment and its remote manipulation. *Robotics and Computer-Integrated Manufacturing*, 22(5-6):515–525, - December 2006.
- [wangl-2010] Wang L., Wu J., and Wang J. Dynamic formulation of a planar 3-dof parallel manipulator with actuation redundancy. *Robotics and Computer-Integrated Manufacturing*, 26(1):67–73, February 2010.
- [wanglc-2002] Wang L.-C. and Oen K.-T. Numerical direct kinematic analysis of fully parallel linearly actuated platform type manipulator. *J. of Robotic Systems*, 19(18):391–400, 2002.
- [wapler98] Wapler M. and Neugebauer J.-G. Erfahrungen mit einem Hexapod-Roboter für die Mikrochirurgie. In *New machine concepts for handling and manufacturing devices on the basis of parallel structures*, pages 243–248, Braunschweig, November, 10-11, 1998.
- [wapler2003] Wapler M. and others . A Stewart platform for precision surgery. *Trans. of the Institute of Measurement and Control*, 25(4):329–334, 2003.
- [warnaar95] Warnaar D.B. and Chew M. Kinematic synthesis of deployable-foldable truss structures using graph theory, Part 1: graph generation. *ASME J. of Mechanical Design*, 117(1):112–116, March 1995.
- [warnaar95-1] Warnaar D.B. and Chew M. Kinematic synthesis of deployable-foldable truss structures using graph theory, Part 2: generation of deployable truss module using design concepts. *ASME J. of Mechanical Design*, 117(1):117–122, March 1995.
- [watson84] Watson P. Fligh simulators-the grand illusion. *Electron. Aust.*, 46(4):12–17, 1984.
- [webb2002] Webb P., Geldart M., and Gindy N. An evaluation of the machining performance of the Giddings and Lewis Variax for hard and difficult material. In *2nd NCG Application Conf. on Parallel Kinematics Machine*, pages 817–831, Chemnitz, April, 23-25, 2002.
- [weber2014] Weber X., Cuvillon L., and Gangloff J. Active vibration canceling of a cable-driven parallel robot using reaction wheels. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 1724–1729, 2014.
- [weber2015] Weber X., Cuvillon L., and Gangloff J. Active vibration canceling of a cable-driven parallel robot in modal space. In *IEEE Int. Conf. on Robotics and Automation*, Seattle, May, 26-30, 2015.
- [weber2016-phd] Weber X. *Commande modale de robots parallèles à câbles flexibles*. Ph.D. Thesis, Université de Strasbourg, Strasbourg, July, 11, 2016. **Keywords:** wire robot, control, vibration.
- [weck2000] Weck M. and Staimer D. On the accuracy of parallel kinematic machine tools: design compensation and calibration. In *2nd Chemnitzer Parallelkinematik Seminar*, pages 73–83, Chemnitz, April, 12-13, 2000.

- [weck2002] Weck M. and Giesler M. Task oriented multi-objective-optimization of parallel kinematics for machine-tools. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 187–211, Chemnitz, April, 23-25, 2002.
- [weck2002-1] Weck M. and Stainer D. Application experience with a hexapode machine-tool for machining complex aerospace parts. In *2nd NCG Application Conf. on Parallel Kinematics Machine*, pages 808–815, Chemnitz, April, 23-25, 2002.
- [wehbeh2020] Wehbeh J., Rahman S., and Sharf I. Distributed model predictive control for uavs collaborative payload transport. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Las Vegas, October, 25-29, 2020.
- [wei-j2019] Wei J. and Dai J.S. Reconfiguration-aimed and manifold-operation based type synthesis of metamorphic parallel mechanisms with motion between 1R2T and 2R1T. *Mechanism and Machine Theory*, 139:66–80, 2019.
- [wei-l2017] Wei L., Limin T., and Zhengnan J. Research on anti-swing characteristic of redundancy cable-driven parallel robot. In *2nd Advanced Information Technology, Electronic and Automation Control Conference (IAEAC)*, 2017.
- [wei-l2018] Wei L. and Angeles J. Full-mobility 3-CCC parallel-kinematics machines: Forward kinematics, singularity, workspace and dexterity analyses. *Mechanism and Machine Theory*, 126:312–328, 2018.
- [wei2019] Wei H., Qiu Y., and Sheng Y. On the cable pseudo-drag problem of cable-driven parallel camera robots at high speeds. *Robotica*, 37:1695–1709, 2019.
- [weikert2002] Weikert S. and Knapp W. Application of the grid-bar device on the Hexaglide. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 295–310, Chemnitz, April, 23-25, 2002.
- [weiss2009] Weill A., Langlois R.G., and Hayes M.J.D. The effect of dual row omnidirectional wheels on the kinematics of the Atlas spherical motion platform. *Mechanism and Machine Theory*, 44(2):349–358, January 2009.
- [weiss2012] Weiss J.C., Ernst B., and Wehking K-H. Use of high strength fibre ropes in multi-rope kinematic robot systems. In *1st Int. Conf. on cable-driven parallel robots (CableCon)*, Stuttgart, September, 3-4, 2012.
- [wen-h2015] Wen H., Xu W., and Cong M. Kinematic model and analysis of an actuation redundant parallel robot with higher kinematic pairs for jaw movement. *IEEE Trans. on Industrial Electronics*, 62(3), March 2015.
- [wen-j-t-2003] Wen J.T. and O'Brien J.F. Singularities in three-legged platform type parallel mechanisms. *IEEE Trans. on Robotics and Automation*, 19(4):720–726, August 2003.
- [wen-jia2002] Wen-Jia C., Ming-Yang Z., and Ling Y. A six-leg, four d.o.f. parallel manipulator. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 227–240, Chemnitz, April, 23-25, 2002.
- [wen-k2017] Wen K., Seo T., and Lee J.W. A geometric approach for singularity analysis of 3-dof planar parallel manipulators using Grassmann–Cayley algebra. *Robotica*, 35:511–520, 2017.
- [wen-s-2016] Wen S. and others . The study of model predictive control algorithm based on the force/position control scheme of the 5-dof redundant actuation parallel robot. *Robotics and Autonomous Systems*, 79:12–25, 2016.
- [wen-s-2017] Wen S. and others . Fuzzy identification and delay compensation based on the force/ position control scheme of the 5-dof redundantly actuated parallel robot. *Int. J. Fuzzy Syst.*, 19(1):124–140, 2017.
- [wen-s-2020] Wen S. and others . Fractional-order internal model control algorithm based on the force/position control structure of redundant actuation parallel robot. *International Journal of Advanced Robotic Systems*, 2020.
- [wen94] Wen F. and Liang C. Displacement analysis of the 6-6 platform mechanisms. *Mechanism and Machine Theory*, 29(4):547–557, May 1994.
- [wendlandt94] Wendlandt J.M. and Sastry S.S. Design and control of a simplified Stewart platform for endoscopy. In *33rd Conf. on Decision and Control*, pages 357–362, Lake Buena Vista, December, 14-16, 1994.
- [weng87] Weng T-C., Sandor G.N., and Xu Y. On the workspace of closed-loop manipulators with ground mounted rotary-linear actuators and finite size platform. In *ASME Design and Automation Conf.*, pages 55–61, Boston, September, 27-30, 1987.

- [weng88] Weng T.C. *Kinematics of parallel manipulators with ground-mounted actuators*. Ph.D. Thesis, University of Florida, Gainesville, 1988. **Keywords:** kinematics.
- [wenger98] Wenger P. and Chablat D. Workspace and assembly modes in fully parallel manipulators: a descriptive study. In *ARK*, pages 117–126, Strobl, June 29- July 4, 1998.
- [wenger2000] Wenger P. and Chablat D. Kinematic analysis of a new parallel machine-tool: the Orthoglide. In *ARK*, pages 305–314, Piran, June, 25-29, 2000.
- [wenger2001] Wenger P., Gosselin C., and Chablat D. A comparative study of parallel kinematic architecture for machining applications. In F.C. Park C.C. Iurascu, editor, *Computational Kinematics*, pages 249–258. EJCK, May, 20-22, 2001. **Keywords:** planar robot, 2 dof robot, workspace, machine-tool.
- [wenger2002] Wenger P. and Chablat D. Design of a three-axis isotropic parallel manipulator for machining applications: the Orthoglide. In *Workshop on Fundamental Issues and Future Research Directions for Parallel Mechanisms and Manipulators*, pages 16–23, Québec, October, 3-4, 2002.
- [wenger2007] Wenger P., Chablat D., and Zein M. Degeneracy study of the forward kinematics of planar 3 – *RPR* parallel manipulators. *ASME J. of Mechanical Design*, 129(12):1265–1268, December 2007.
- [wenger2009] Wenger P. and Chablat D. Kinematic analysis of a class of analytic planar 3 – *RPR* parallel manipulators. In *Computational Kinematics*, pages 43–50, Duisburg, May, 6-8, 2009.
- [wenjie2019] Wenjie T. and others . Kinematic calibration of a 5-DOF hybrid kinematic machine tool by considering the ill-posed identification problem using regularisation method. *Robotics and Computer-Integrated Manufacturing*, 60:49–62, 2019.
- [weule2002] Weule H. and others . Computer-aided optimization of the static and dynamic properties of parallel kinematics. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 527–546, Chemnitz, April, 23-25, 2002.
- [wieland98] Wieland F. and others . Erfahrungen mit einer Hexapod-Werkzeugmaschine in der Produktionstechnik. In *New machine concepts for handling and manufacturing devices on the basis of parallel structures*, pages 271–285, Braunschweig, November, 10-11, 1998.
- [wiens98] Wiens G.J. and Hardage D. Dynamics and controls of hexapod machine-tools. In *First European-American Forum on Parallel Kinematic Machines*, pages 217–225, Milan, August 31- September 1, 1998.
- [wiens2002] Wiens G.J., Shamblin S.A., and Oh Y.H. Characterization of PKM dynamics in terms of system identification. *Proc. Instn Mech Engrs, Part K: J. Multi-body dynamics*, 216(1):59–72, March 2002.
- [wiitala98] Wiitala J.M. and Stanisic M.M. Kinematics of a split-equator symmetrically actuated double pointing systems used in a robotic wrist. In *ARK*, pages 237–246, Strobl, June 29- July 4, 1998.
- [wiitala2000] Wiitala J.M. and Stanisic M.M. Design of an overconstrained and dextrous spherical wrist. *ASME J. of Mechanical Design*, 122(3):347–353, September 2000.
- [wildenberg2000] Wildenberg F. Calibration for hexapod CMW. In *2nd Chemnitzer Parallelkinematik Seminar*, pages 101–112, Chemnitz, April, 12-13, 2000.
- [williams-i2006] Williams I., Hovland G., and Brogardh T. Kinematic error calibration of the Gantry-Tau parallel manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 4199–4204, Orlando, May, 16-18, 2006.
- [williams88] Williams II R.L. and Reinholtz C.F. Closed-form workspace determination and optimization for parallel robot mechanisms. In *ASME Proc. of the the 20th Biennial Mechanisms Conf.*, pages 341–351, Kissimmee, Orlando, September, 25-27, 1988.
- [williams98] Williams II R.L. and Hexter E.R. Maximizing kinematic motion for a 3-dof VGT module. *ASME J. of Mechanical Design*, 120(2):333–336, June 1998.
- [williams98-1] Williams II R.L. Cable-suspended haptic interface. *International Journal of Virtual Reality*, 3(33), 1998.
- [williams2000] Williams II R.L. and Poling D.B. Spherically-actuated platform manipulator. In *ASME Proc. of the the 26th Biennial Mechanisms Conf.*, Baltimore, September, 10-13, 2000.

- [williams2001] Williams II R.L. and Gallina P. Planar cable-direct-driven robots, Part 1: kinematics and statics. In *ASME Proc. of the the 27th Biennial Mechanisms Conf.*, Pittsburgh, September, 9-12, 2001.
- [williams2002] Williams II R.L. and Gallina P. Planar translational cable-direct-driven robots: design of wrench exertion. *J. of Intelligent and Robotic Systems*, 35(2):203–219, 2002.
- [williams2003] Williams II R.L., Gallina P., and Vadia J. Planar translational cable-direct-driven robots. *J. of Robotic Systems*, 20(3):107–120, 2003.
- [williams2004] Williams II R.L., Albus J., and Bostelman R. 3D cable-based cartesian metrology system. *J. of Robotic Systems*, 21(5):237–257, 2004.
- [williams2004-1] Williams II R.L., Snyder B., Albus J., and Bostelman R. Seven-dof cable- suspended robot with independent metrology. In *ASME Proc. of the the 30th Biennial Mechanisms Conf.*, Salt Lake City, 2004.
- [williams2005] Williams II R.L. Novel cable-suspended Robotcrane support. *Industrial Robot*, 32(4):326–333, 2005.
- [williams2006] Williams II R.L., Chadaram V., and Giacometti F. Three-cable haptic interface. In *ASME Proc. of the the 32th Biennial Mechanisms Conf.*, Philadelphia, September, 10-13, 2006.
- [wilson1997] Wilson D.R. and O’Connor J.J. A three-dimensional geometric model of the knee for the study of joint forces in gait. *Gait & Posture*, 5(2):108–115, 1997.
- [wilson1998] Wilson D.R., Feikes J.D., and O’Connor J.J. Ligaments and articular contact guide passive knee flexion. *J. of Biomechanics*, 31(12):1127–1136, 1998.
- [wingert2002] Wingert A., M.D. Lichtel, and Dubowsky S. On the kinematics of parallel mechanisms with bi-stable polymer actuators. In *ARK*, pages 303–310, Caldes de Malavalla, June 29- July 2, 2002.
- [wischnitzer2008] Y. Wischnitzer, Shvalb N., and Shoham M. Wire-driven parallel robot: permitting collisions between wires. *Int. J. of Robotics Research*, 27(9):1007–1026, September 2008.
- [wang-w-2008] Wang W. and others . *Parallel manipulators, Towards new applications*, chapter A reconfigurable mobile robot system based on a parallel mechanism, pages 347–362. ITECH, April 2008. **Keywords:** 2 dof robot, applications.
- [wobbe2010] Wobbe F., Nguyen D.H., and Schumacher W. Anti-windup design for trajectory tracking of a parallel robot - an holistic approach. In *IEEE Int. Conf. on Robotics and Automation*, pages 4001–4008, Anchorage, May, 3-8, 2010.
- [woernle2012] Woernle C. Trajectory tracking for a three-cable suspension manipulator by nonlinear feedforward and linear feedback control. In *1st Int. Conf. on cable-driven parallel robots (CableCon)*, Stuttgart, September, 3-4, 2012.
- [wohlhart94] Wohlhart K. Displacement analysis of the general spherical Stewart platform. *Mechanism and Machine Theory*, 29(4):581–589, May 1994.
- [wohlhart96] Wohlhart K. Kinematotropic linkages. In *ARK*, pages 359–368, Portoroz-Bernadin, June, 22-26, 1996.
- [wohlhart99] Wohlhart K. Degrees of shakiness. *Mechanism and Machine Theory*, 34(7):1103–1126, October 1999.
- [wohlhart2000] Wohlhart K. Architectural shakiness or architectural mobility of platforms. In *ARK*, pages 365–374, Piran, June, 25-29, 2000.
- [wohlhart2002] Wohlhart K. Synthesis of architecturally mobile double-planar platforms. In *ARK*, pages 473–482, Caldes de Malavalla, June 29- July 2, 2002.
- [wohlhart2003] Wohlhart K. Mobile 6-SPS parallel manipulators. *J. of Robotic Systems*, 20(8):509–516, 2003.
- [wolf2002] Wolf A., Shoham M., and Park F.C. Investigation of singularities and self-motions of the 3-UPU robot. In *ARK*, pages 165–174, Caldes de Malavalla, June 29- July 2, 2002.
- [wolf2003] Wolf A. and Shoham M. Investigation of parallel manipulators using linear complex approximation. *ASME J. of Mechanical Design*, 125(3):564–572, September 2003.

- [wolf2004] Wolf A. and others . Application of line geometry and linear complex approximation to singularity analysis of the 3-dof CaPaMan manipulator. *Mechanism and Machine Theory*, 39(1):75–95, January 2004.
- [wolf2006] Wolf A. and Shoham M. Screw theory for the synthesis of the geometry of a parallel robot for a given instantaneous task. *Mechanism and Machine Theory*, 41(6):656–670, June 2006.
- [wu-c2011] Wu C. and others . New measure for ‘closeness’ to singularities of parallel robots. In *IEEE Int. Conf. on Robotics and Automation*, pages 5135–5140, Shangai, May, 9-13, 2011.
- [wu-g-2014] Wu G., Bai S., and Kepler J. Mobile platform center shift in spherical parallel manipulators with flexible limbs. *Mechanism and Machine Theory*, 75:12–26, May 2014.
- [wu-g-2014-1] Wu G., Caro S., Bai S., and Kepler J. Dynamic modeling and design optimization of a 3-dof spherical parallel manipulator. *Robotics and Autonomous Systems*, 62(10):1377–1386, October 2014.
- [wu-g-2015] Wu G., Caro S., and Wang J. Design and transmission analysis of an asymmetrical spherical parallel manipulator. *Mechanism and Machine Theory*, 94, 2015.
- [wu-g-2015-1] Wu G., Bai S., and Hjornet P. Parametric optimal design of a parallel Schönflies-motion robot under pick-and-place trajectory constraints. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Hamburg, Germany, September 28- October 2, 2015.
- [wu-g-2016] Wu G. and Zou P. Comparison of 3-dof asymmetrical spherical parallel manipulators with respect to motion/force transmission and stiffness. *Mechanism and Machine Theory*, 105:369–387, 2016.
- [wu-g-2020] Wu G. and others . A four-limb parallel Schönflies motion generator with full-circle end-effector rotation. *Mechanism and Machine Theory*, 146, 2020.
- [wu-g-2022] Wu G. and others . Trajectory tracking by fuzzy-based super-twist sliding mode control of a parallel PnP robot. In *ARK*, Bilbao, June, 26-30, 2022.
- [wu-g2017] Wu G., Bai S., and Caro S. Transmission quality evaluation for a class of four-limb parallel Schönflies-motion generators with articulated platforms. In *Computational Kinematics*, Poitiers, May 2017.
- [wu-g2017-1] Wu G. and Zou P. Stiffness analysis and comparison of a Biglide parallel grinder with alternative spatial modular parallelograms. *Robotica*, 35(6):1310–1326, 2017.
- [wu-g2018] Wu G. and Niu B. Dynamic stability of a tripod parallel robotic wrist featuring continuous end-effector rotation used for drill point grinder. *Mechanism and Machine Theory*, 129:36–50, 2018.
- [wu-g2018-1] Wu G. Workspace, transmissibility and dynamics of a new 3T3R parallel pick-and-place robot with high rotational capability. In *IEEE Int. Conf. on Robotics and Automation*, Brisbane, May, 21-25, 2018.
- [wu-g2018-2] Wu H., G. ans Shen. Lateral stability of a 3-dof asymmetrical spherical parallel manipulator with a universal joint featuring infinite torsional mouvement. In *ARK*, pages 233–241, Bologna, July, 1-5, 2018.
- [wu-g2019] Wu G. and Bai S. Design and kinematic analysis of a 3-RRR spherical parallel manipulator reconfigured with four-bar linkages. *Robotics and Computer-Integrated Manufacturing*, 56:55–65, 2019.
- [wu-h-2003] Wu H. and others . Design of parallel intersector weld/cut robot for machining processes in ITER vacuum vessel. *Fusion Engineering and Design*, 69(1-4):327–331, September 2003.
- [wu-h-2005] Wu H. and others . Development and control towards a parallel water hydraulic weld/cut robot for machining processes in ITER vacuum vessel. *Fusion Engineering and Design*, 75-79:625–631, November 2005.
- [wu-h-2006] Wu H., Pessi P., Handroos H., and Jones L. Kinematics and control of a mobile parallel robot machine. In *5th Chemnitz Parallelkinematik Seminar*, pages 399–412, Chemnitz, April, 25-26, 2006.
- [wu-h-2008] Wu H., Handroos H., and Pessi P. *Parallel manipulators, Towards new applications*, chapter Hybrid parallel robot for the assembling of ITER, pages 363–378. ITECH, April 2008. **Keywords:** hybrid robot,applications,hydraulics.
- [wu-h-2024] Wu H. and others . Kinetostatics modeling and elasto-geometrical calibration of overconstrained parallel manipulators. *Mechanism and Machine Theory*, 191, 2024.



- [wu-j2007] Wu J., Wang J-S., L-P. Wang, and Li T-M. Dexterity and stiffness analysis of a three-degree-of-freedom planar parallel manipulator with actuation redundancy. *Proc. Instn Mech Engrs, Part C: J. Mechanical Engineering Science*, 221(8):961–969, 2007.
- [wu-j2007-1] Wu J., Wang J-S., Li T-M., and L-P. Wang. Analysis and application of a 2-dof planar parallel mechanism. *ASME J. of Mechanical Design*, 129(4):434–437, April 2007.
- [wu-j2008] Wu J., Wang J., and Wang L. Optimal kinematic design and application of a redundantly actuated 3dof planar parallel manipulator. *ASME J. of Mechanical Design*, 130(5):054503–1/5, May 2008.
- [wu-j2008-1] Wu J. and Yin Z. *Parallel manipulators, Towards new applications*, chapter A novel 4-dof parallel manipulator H4, pages 405–448. ITECH, April 2008. **Keywords:** 4 dof robot, mechanical architecture, performance analysis.
- [wu-j2009] Wu J., Wang J., Wang L., and Li T. Dynamics and control of a planar 3-dof parallel manipulator with actuation redundancy. *Mechanism and Machine Theory*, 44(4):835–849, April 2009.
- [wu-j2009-1] Wu J. and others . Study on the stiffness of a 5-dof hybrid machine-tool with actuation redundancy. *Mechanism and Machine Theory*, 44(2):289–305, February 2009.
- [wu-j2009-2] Wu J. and others . Dynamic model and force control of the redudantly actuated parallel manipulator of a 5-dof hybrid machine-tool. *Robotica*, 27(1):59–65, January 2009.
- [wu-j2010] Wu J., Wang J., and Wang L. A comparison study of two planar 2-dof parallel mechanisms one with 2-RRR and the other with 3-RRR structures. *Robotica*, 28(6):937–942, October 2010.
- [wu-j2010-1] Wu J. and Wang J. Motion control of the 2-dof parallel manipulator of a hybrid machine tool. *Robotica*, 28(6):861–868, October 2010.
- [wu-j2011] Wu J., Wang J., and You Z. A comparison study on the dynamics of planar 3-dof 4-RRR, 3-RRR and 2-RRR pallellel manipulators. *Robotics and Computer-Integrated Manufacturing*, 27(1):150–156, February 2011.
- [wu-j2013] Wu J. and others . Optimal design of a 2-DOF parallel manipulator with actuation redundancy considering kinematics and natural frequency. *Robotics and Computer-Integrated Manufacturing*, 29(1):80–85, February 2013.
- [wu-j2013-1] Wu J. and others . Performance analysis and comparison of planar 3-dof parallel manipulators with one and two additional branches. *J. of Intelligent and Robotic Systems*, 29(1):73–82, October 2013.
- [wu-j2013-2] Wu J. and others . Stiffness and natural frequency of a 3-dof parallel manipulator with consideration of additional leg candidates. *Robotics and Autonomous Systems*, 61:868–875, 2013.
- [wu-j2017] Wu J. and others . A 3-dof quick-action parallel manipulator based on four linkage mechanisms with high-speed cam. *Mechanism and Machine Theory*, 115:168–196, September 2017.
- [wu-j2017-1] Wu J. and others . Workspace and dynamic performance evaluation of the parallel manipulators in a spray-painting equipment. *Robotics and Computer-Integrated Manufacturing*, 44:199–207, 2017.
- [wu-j2017-2] Wu J. and others . A parametric model of 3-PPR planar parallel manipulators for optimum shape design of platforms. *Mechanism and Machine Theory*, 118(5), December 2017.
- [wu-j2018] Wu J. and others . Mechatronics modeling and vibration analysis of a 2-dof parallel manipulator in a 5-dof hybrid machine tool. *Mechanism and Machine Theory*, 121:430–445, 2018.
- [wu-j2019] Wu J. and others . Kinematics solving of under-constrained cable-driven parallel robots based on intelligent algorithm. In *4th Int. Conf. on Control and Robotics Engineering*, 2019.
- [wu-l2018] Wu L. and others . An approach for elastodynamic modeling of hybrid robots based on substructure synthesis technique. *Mechanism and Machine Theory*, 123:124–136, 2018.
- [wu-m2011] Wu M. and others . A cable-driven locomotor training system for restoration of gait in human SCI. *Gait & Posture*, 33(2):256–260, February 2011.

- [wu-m2011-1] Wu M. and others . A novel cable-driven robotic training improves locomotor function in individuals post-stroke. In *33rd Annual International Conference of the IEEE EMBS*, Boston, 2011.
- [wu-m2020] Wu M. and others . Vibration reduction of delta robot based on trajectory planning. *Mechanism and Machine Theory*, 153, 2020.
- [wu-tl2007] Wu T-L. and Chang S-H. Mechanism design of multi-degrees of freedom nano-positioner. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [wu-wd-96] Wu W.D. and Huang Y.Z. The direct kinematic solution of the planar Stewart platform with coplanar ground points. *J. of Computational Mathematics*, 14(3):263–272, 1996.
- [wu-x2020] Wu X. and Bai S. Analytical determination of shape singularities for three types of parallel manipulators. *Mechanism and Machine Theory*, 149, 2020.
- [wu-y2002] Wu Y. and Gosselin C.M. Kinematic analysis of spatial 3-dof parallelepiped mechanisms. In *ARK*, pages 423–432, Caldes de Malavalla, June 29- July 2, 2002.
- [wu-y2002-1] Wu Y. and others . Topology analysis of closed-chain mechanisms. In *IEEE Int. Conf. on Robotics and Automation*, pages 2856–2860, Washington, May, 11-15, 2002.
- [wu-y2004] Wu Y. and Gosselin C.M. Synthesis of reactionless spatial 3-dof and 6-dof mechanisms without separate counter-rotations. *Int. J. of Robotics Research*, 23(6):625–642, 2004.
- [wu-y2008] Wu Y. and others . Quotient kinematics machines:concept, analysis and synthesis. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 1964–1969, Nice, France, September, 22-26, 2008.
- [wu-y2010] Wu Y. and others . Quotient kinematics machines:concept, analysis and synthesis. In *IEEE Int. Conf. on Robotics and Automation*, pages 2739–2744, Anchorage, May, 3-8, 2010.
- [wu-y2017] Wu Y. and Carricato M. Synthesis and singularity analysis of  $N - \mathcal{UU}$  parallel wrists: a symmetric space approach. *J. of Mechanisms and Robotics*, 9(5), October 2017.
- [wu-y2018] Wu Y. and others . CU-brick cable-driven robot for automated construction of complex brick structures: From simulation to hardware realisation. In *2018 IEEE International Conference on Simulation, Modeling, and Programming for Autonomous Robots (SIMPAN)*, pages 166–173, 2018.
- [wu-y2018-1] Wu Y. and Carricato M. Line-symmetric motion generators. In *ARK*, Bologna, July, 1-5, 2018.
- [wu-y2019] Wu Y. and Carricato M. Workspace optimization of a class of zero-torsion parallel wrists. *Robotica*, 37:1174–1189, 2019.
- [wu-z2016] Wu Z. and others . A 6dof passive vibration isolator using x-shape supporting structures. *Journal of Sound and Vibration*, 380:90–111, 2016.
- [wu-z2018] Wu Z. and Xu Q. Design, optimization and testing of a compact XY parallel nanopositioning stage with stacked structure. *Mechanism and Machine Theory*, 126:171–188, 2018.
- [wu92] Wu K.C and Sutter T.R. Structural analysis of three space crane articulated truss joint concepts. Research Report TM-4373, NASA Research Center, Langley, May 1992.
- [wurst2002] Wurst K-H. and Peting U. PKM concept for reconfigurable machine-tools. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 683–695, Chemnitz, April, 23-25, 2002.
- [xi99] Xi F. Dynamic balancing of hexapods for high-speed applications. *Robotica*, 17(3):335–342, May 1999.
- [xi2001] Xi F. and others . Development of a sliding-leg tripod as an add-on device for manufacturing. *Robotica*, 19(3):285–294, May 2001.
- [xi2002] Xi F., Zhang D., and Mechefske C.M. Global kinetostatic analysis of parallel kinematic machines. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 907–922, Chemnitz, April, 23-25, 2002.
- [xi2002-1] Xi F. and others . A comparison study on tripod units for machine tools. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 923–939, Chemnitz, April, 23-25, 2002.

- [xi2004] Xi F. and others . Global kinetostatic modelling of tripod-based parallel kinematic machine. *Mechanism and Machine Theory*, 39(4):357–377, April 2004.
- [xi2005] Xi F., Angelico O., and Sinatra R. Tripod dynamics and its inertia effect. *ASME J. of Mechanical Design*, 127(1):144–149, January 2005.
- [xi2006] Xi F., Xu Y., and Xiong G. Design and analysis of a re-configurable parallel robot. *Mechanism and Machine Theory*, 41(2):191–211, February 2006.
- [xi2020] Xi F. and others . Analysis and control of an actuation-redundant parallel mechanism requiring synchronization. *J. of Mechanisms and Robotics*, 12, August 2020.
- [xia2022] Xia Z. and others . A novel 6 dofs generalized parallel manipulator design and analysis based on humanoid leg. *Mechanism and Machine Theory*, 176, 2022.
- [xiang-y2021] Xiang Y., Li Q., and Jiang X. Dynamic rotational trajectory planning of a cable-driven parallel robot for passing through singular orientations. *Mechanism and Machine Theory*, 158, 2021.
- [xiang2020] Xiang S., Gao Z., H.and Liu, and Gosselin C. Dynamic transition trajectory planning of three-DOF cable-suspended parallel robots via linear time-varying MPC. *Mechanism and Machine Theory*, 146, 2020.
- [xiang2020-1] Xiang S., Gao Z., H.and Liu, and Gosselin C. Trajectory optimization for a six-dof cable-suspended parallel robot with dynamic motions beyond the static workspace. In *IEEE Int. Conf. on Robotics and Automation*, Paris, May 31- August 31, 2020.
- [xiao-h2018] Xiao H., Lu S., and Ding X. Tension cable distribution of a membrane antenna frame based on stiffness analysis of the equivalent 4-SPS-S parallel mechanism. *Mechanism and Machine Theory*, 124:133–149, 2018.
- [xiao2014] Xiao S. and Li Y. Model-based sliding mode control for a 3-dof translational micro parallel positioning stage. In *IEEE Int. Conf. on Robotics and Automation*, Hong-Kong, 7 August 31- June , 2014.
- [xiaoguang2016] Xiaoguang W., Shaoyu M., and Qi L. Hybrid pose/tension control based on stiffness optimization of cable-driven parallel mechanism in wind tunnel test. In *2nd International Conference on Control, Automation and Robotics*, 2016.
- [xie-c-2021] Xie C. and others . Deep reinforcement learning based cable tension distribution optimization for cable-driven rehabilitation robot. In *IEEE Int. Conf. on Advanced Robotics and Mechatronics*, Chongqing, July, 3-5, 2021.
- [xie-s2020] Xie S. and others . Dynamic modeling and performance analysis of a new redundant parallel rehabilitation robot. *IEEE Access*, 2020.
- [xie-z2021] Xie Z. and others . Global  $G^3$  continuity toolpath smoothing for a 5-dof machining robot with parallel kinematics. *Robotics and Computer-Integrated Manufacturing*, 67, 2021.
- [xie2003] Xie D. and Anamato N.M. A kinematics-based probabilistic roadmap method for high dof closed chain systems. Research Report TR03-007, Departement of Computer Science, Texas A&M University, November, 14, 2003.
- [xie2004] Xie D. and Anamato N.M. A kinematics-based probabilistic roadmap method for high dof closed chain systems. In *IEEE Int. Conf. on Robotics and Automation*, New Orleans, April, 28-30, 2004.
- [xing2022] Xing S. and others . Component calibration and configuration planning in assembly automation with a parallel manipulator. *Robotics and Computer-Integrated Manufacturing*, 77, October 2022.
- [xiong2020] Xiong H. and others . Comparison of end-to-end and hybrid deep reinforcement learning strategies for controlling cable-driven parallel robots. *Neurocomputing*, 377:73–84, 2020.
- [xu-k2018] Xu K. and others . Design of 3-dof zero coupling degree planar parallel manipulator based on coupling-reducing and its kinematic performance improvement. In *EUCOMES*, pages 400–408, Aachen, September, 4-6, 2018.
- [xu-l-2017] Xu L. and others . Kinematic analysis and design of a novel  $3T1R2 - (PRR)^2RH$  hybrid manipulator. *Mechanism and Machine Theory*, 112:105–122, 2017.

- [xu-l2018] Xu L. and others . Tex3: An 2R1T parallel manipulator with minimum dof of joints and fixed linear actuators. *International Journal of Precision Engineering and Manufacturing*, 19(2), 2018.
- [xu-l2019] Xu L. and others . Design, analysis and optimization of Hex4, a new 2R1T overconstrained parallel manipulator with actuation redundancy. *Robotica*, 37(2), 2019.
- [xu-lj-2001] Xu L.J., Fan S-W., and Li H. Analytical model method for dynamics of N-celled tetrahedron variable geometry truss manipulators. *Mechanism and Machine Theory*, 36(11-12):1271–1279, November 2001.
- [xu-p-2017] Xu P. and others . Kinematics analysis of a hybrid manipulator for computer controlled ultra-precision freeform polishing. *Robotics and Computer-Integrated Manufacturing*, 44:44–56, 2017.
- [xu-q-2006] Xu Q. and Li Y. A novel design of a 3-PRC compliant parallel micromanipulator for nanomanipulation. *Robotica*, 24(4):527–528, July 2006.
- [xu-q-2007] Xu Q. and Li Y. Design and analysis of a new three-prismatic-revolute-cylindrical translational parallel manipulator. *Proc. Instn Mech Engrs, Part C: J. Mechanical Engineering Science*, 221(5):565–576, 2007.
- [xu-q-2007-1] Xu Q. and Li Y. Influences of constraint errors on the mobility of a 3-dof translational parallel manipulator. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [xu-q-2009] Xu Q. and Li Y. Error analysis and optimal design of a class of translational parallel kinematic machine using particle swarm optimization. *Robotica*, 27(1):67–78, 2007.
- [xu-q-2010] Xu Q. and Li Y. Dahl model-based hysteresis compensation and precise positioning control of an XY parallel micromanipulator with piezoelectric actuation. *ASME J. of Dynamic Systems, Measurement and Control*, 132(4):041011–1/15, July 2010.
- [xu-wl2008] Xu W.L., Pap J-S., and Bronlund J. Design of a biologically inspired parallel robot for foods chewing. *IEEE Trans. on Industrial Electronics*, 55(2), February 2008.
- [xu-y-2015] Xu Y. and others . A method for force analysis of the overconstrained lower mobility parallel mechanism. *Mechanism and Machine Theory*, 88:31–48, June 2015.
- [xu-y-2017] Xu Y. and others . Type synthesis of the 2R1T parallel mechanisms with two continuous rotational axes and study on the principle of motion decoupling. *Mechanism and Machine Theory*, 108:27–40, 2017.
- [xu-y-2020] Xu Y. and others . Type synthesis of overconstrained 2R1T parallel mechanisms with the fewest kinematic joints based on the ultimate constraint wrenches. *Mechanism and Machine Theory*, 147, 2020.
- [xu-y-2021] Xu Y. and others . Force analysis of the redundantly actuated parallel mechanism 2RPR+P considering different control methodologies. *Robotics and Autonomous Systems*, 142, 2021.
- [xu-y2019] Xu Y. and others . Principle of force analysis of overconstrained parallel mechanisms considering link weight. *Robotica*, 37:1533–1544, 2019.
- [xu92] Xu Y-X., Kohli D., and Weng T-C. Direct differential kinematics of hybrid-chain manipulators including singularities and stability analyses. In *22nd Biennial Mechanisms Conf.*, volume DE-45, pages 65–73, Scottsdale, September, 13-16, 1992.
- [xu-z2020] Xu Z. and others . Dynamics analysis of a novel 3-PSS parallel robot based on linear motor. *IEEE Access*, 2020.
- [yakey2001] Yakey J.H. and others . Randomized path planning for linkages with closed kinematic chains. *IEEE Trans. on Robotics and Automation*, 17(6):951–958, December 2001.
- [yamada2004] Yamada H., Kudomi S., and Muto T. Development of a hydraulic parallel-link-type force display (investigation of basis function of the force display). *Int. J. of Robotics and Automation*, 19(1):1–5, 2004.
- [yamakawi2004] Yamakawi T., Omata T., and Mori O. 4R and 5R parallel mechanism mobile robots. In *IEEE Int. Conf. on Robotics and Automation*, pages 3684–3689, New Orleans, April, 28-30, 2004.

- [yamamoto2000] Yamamoto M. and Mohri A. Inverse kinematic analysis for incompletely restrained parallel wire mechanisms. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Takamatsu, October 30- November 5, 2000.
- [yamamoto2004] Yamamoto M., Yanai N., and Mohri A. Trajectory control of incompletely restrained parallel-wire-suspended mechanism based on inverse dynamics. *IEEE Trans. on Robotics*, 20(5):840–850, October 2004.
- [yamamoto99] Yamamoto M., Yanai N., and Mohri A. Inverse dynamics and control of crane-type manipulator. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 1222–1227, Kyongju, October, 17-21, 1999.
- [yamane98] Yamane K. and others . Parallel dynamics computation and  $H_\infty$  acceleration control of parallel manipulators for acceleration display. In *IEEE Int. Conf. on Robotics and Automation*, pages 2301–2306, Louvain, May, 18-20, 1998.
- [yamane2005] Yamane K. and others . Parallel dynamics computation and  $H_\infty$  acceleration control of parallel manipulators for acceleration display. *ASME J. of Dynamic Systems, Measurement and Control*, 127(2):185–191, June 2005.
- [yan2016] Yan S.J., Ong S.K., and Nee A.Y.C. Stiffness analysis of parallelogram-type parallel manipulators using a strain energy method. *Robotics and Computer-Integrated Manufacturing*, 37:13–22, 2016.
- [yang-c2010] Yang C. and others . PD control with gravity compensation for hydraulic 6-DOF parallel manipulator. *Mechanism and Machine Theory*, 45(4):666–677, April 2010.
- [yang-c2012] Yang C. and others . Decoupling control for spatial six-degree-of-freedom electro-hydraulic parallel robot. *Mechanism and Machine Theory*, 28:14–23, 2012.
- [yang-c2014] Yang C., Qu Z., and Han J. Decoupled-space control and experimental evaluation of spatial electro-hydraulic robotic manipulators using singular value decomposition algorithms. *IEEE Trans. on Industrial Electronics*, 61(7), July 2014.
- [yang-c2018] Yang C. and others . Elastostatic stiffness modeling of overconstrained parallel manipulators. *Mechanism and Machine Theory*, 122:58–74, 2018.
- [yang-c2020] Yang C., Li Q., and Q. Chen. Decoupled elastostatic stiffness modeling of parallel manipulators based on the rigidity principle. *Mechanism and Machine Theory*, 145, 2020.
- [yang-c2021] Yang C., Li Q., and Q. Chen. Natural frequency analysis of parallel manipulators using global independent generalized displacement coordinates. *Mechanism and Machine Theory*, 156, 2021.
- [yang-c2022] Yang C., Li Q., and Ye W. Dimensional synthesis method of parallel manipulators based on the principle component analysis. *Mechanism and Machine Theory*, 176, 2022.
- [yang-g99] Yang G., Chen I-M., and Yeo S.H. Design consideration and kinematic modeling for modular reconfigurable parallel robots. In *10th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 1079–1084, Oulu, June, 20-24, 1999.
- [yang-g2001] Yang G. and others . Kinematic design of modular reconfigurable in-parallel robots. *Autonomous Robots*, 10(1):83–89, January 2001.
- [yang-g2001-1] Yang G. and others . Self-calibration of three-legged modular reconfigurable parallel robots based on leg-end distance errors. *Robotica*, 19(2):187–198, March 2001.
- [yang-g2001-2] Yang G. and others . Singularity analysis of three-legged parallel robots based on passive-joint velocities. In *IEEE Int. Conf. on Robotics and Automation*, pages 2407–2412, Seoul, May, 21-26, 2001.
- [yang-g2001-3] Yang G., Chen I-M., and Angeles J. Singularity analysis of three-legged parallel robots based on passive joint velocities. *IEEE Trans. on Robotics and Automation*, 17(4):413–422, August 2001.
- [yang-g2002] Yang G. and others . Simultaneous base and tool calibration for self-calibrated parallel robots. *Robotica*, 20(4):367–374, July 2002.

- [yang-g2002-1] Yang G., Chen W., and Chen I-M. A geometrical method for the singularity analysis of 3-RRR planar parallel robots with different actuation schemes. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 2055–2060, Lausanne, October 2002.
- [yang-g2004] Yang G., Chen I-M., W. Chen, and Lin W. Kinematic design of a six-dof parallel-kinematics machine with decoupled-motion architecture. *IEEE Trans. on Robotics*, 20(5):876–884, October 2004.
- [yang-g2004-1] Yang G., Yeo S.H., and Pham C.B. Kinematics and singularity analysis of a planar cable-driven parallel manipulator. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Sendai, September 28- October 2, 2004.
- [yang-g2006] Yang G., Pham C.B., and Yeo S.H. Workspace performance optimization of fully restrained cable-driven parallel manipulators. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Beijing, October, 9-15, 2006.
- [yang-g2011] Yang G. and others . Analysis and design of a 3-dof flexure-based zero-torsion parallel manipulator for nano-alignment applications. In *IEEE Int. Conf. on Robotics and Automation*, Shanghai, May, 9-13, 2011.
- [yang-j98] Yang J. and Geng Z.J. Closed form forward kinematics solution to a class of hexapod robots. *IEEE Trans. on Robotics and Automation*, 14(7):503–508, June 1998.
- [yang-j2011] Yang J. and others . Type synthesis of parallel mechanisms having the first class  $G_F$  sets and one-dimensional rotation. *Robotica*, 29:895–902, 2011.
- [yang-m2019] Yang M. and others . Optimal design, modeling and control of a long stroke 3-PRR compliant parallel manipulator with variable thickness flexure pivots. *Robotics and Computer-Integrated Manufacturing*, 60:23–33, 2019.
- [yang-ph96] Yang P-H., Waldron J.K., and Orin D.E. Kinematics of a three degree-of-freedom motion platform for a low cost driving simulator. In *ARK*, pages 89–98, Portoroz-Bernadin, June, 22-26, 1996.
- [yang-ph2000] Yang P-H. and Waldron J.K. Coordination of parallel arrays of binary actuators. In *13th RoManSy*, pages 43–50, Zakopane, July, 3-6, 2000.
- [yang-s2016] Yang S. and others . A finite screw approach to type synthesis of three-dof translational parallel mechanisms. *Mechanism and Machine Theory*, 104:405–419, 2016.
- [yang-s2017] Yang S., Sun T., and Huang T. Type synthesis of parallel mechanisms having 3T1R motion with variable rotational axis. *Mechanism and Machine Theory*, 109:220 – 230, 2017.
- [yang-s2020] Yang S. and Li Y. Different kinds of 3T2R serial kinematic chains and their applications in synthesis of parallel mechanisms. *Mechanism and Machine Theory*, 144, 2020.
- [yang-sy2012] Yang S.Y., Mac Lachlan R.A., and Riviere C.N. Design and analysis of 6 dof handheld micromanipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 1946–1951, Saint Paul, May, 14-18, 2012.
- [yang-t2009] Yang T. and others . Robust backstepping control of active vibration isolation using a Stewart platform. In *IEEE Int. Conf. on Robotics and Automation*, pages 1788–1793, Kobe, May, 14-16, 2009.
- [yang-tl2018] Yang T-l. and others . *Topology design of robot mechanisms*. Springer, 2018. **Keywords:** structural synthesis.
- [yang-x2017] Yang X. and others . A dual quaternion solution to the forward kinematics of a class of six-dof parallel robots with full or redundant actuation. *Mechanism and Machine Theory*, 107:27 – 36, 2017.
- [yang-x2017-1] Yang X. and others . Dynamic isotropic design and decentralized active control of a six-axis vibration isolator via Stewart platform. *Mechanism and Machine Theory*, 117:244–252, 2017.
- [yang-x2018] Yang X. and others . A dual quaternion approach to efficient determination of the maximal singularity-free joint space and workspace of six-dof parallel robots. *Mechanism and Machine Theory*, 129:279–292, 2018.
- [yang-x2019] Yang X. and others . Modified robust dynamic control for a Diamond parallel robot. *IEEE/ASME Trans. on Mechatronics*, 24(3), June 2019.

- [yang-y2008] Yang Y. and O'Brien J.F. A sequential method for the singularity free workspace design of a planar 3-arm parallel robot. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 1977–1982, Nice, France, September, 22-26, 2008.
- [yang-y2008-1] Yang Y. and O'Brien J.F. Finding unmanipulable singularities in parallel mechanisms using jacobian decomposition. *J. of Intelligent and Robotic Systems*, 53(1):3–19, September 2008.
- [yang-y2009] Yang Y. and O'Brien J.F. A geometric approach for the design of singularity-free parallel robots. In *IEEE Int. Conf. on Robotics and Automation*, pages 1801–1806, Kobe, May, 14-16, 2009.
- [yang-y2009-1] Yang Y. and Zhang Y. A new cable-driven haptic device for integrating kinesthetic and cutaneous display. In *ASME/IFToMM International Conference on Reconfigurable Mechanisms and Robots*, pages 386–391, 2009.
- [yang-y2010] Yang Y. and O'Brien J.F. A sequential method for the singularity-free workspace design of a three legged parallel robot. *Mechanism and Machine Theory*, 45(11):1674–1706, November 2010.
- [yang-y2011] Yang Y. and O'Brien J.F. A novel composition of 2 parallel robots for 6dof workspace. In *IEEE Int. Conf. on Robotics and Automation*, Shanghai, May, 9-13, 2011.
- [yang-y2018] Yang Y. and others . Design of 2-degrees-of-freedom (dof) planar translational mechanisms with parallel linear motion elements for an automatic docking device. *Mechanism and Machine Theory*, 121:398–424, 2018.
- [yang-y2021] Yang Y. and others . Kinematic stability of a 2-dof deployable translational parallel manipulator. *Mechanism and Machine Theory*, 160, 2021.
- [yang-z2018] Yang Z. and Zhang D. Novel design of a 3-RRUU 6-dof parallel manipulator. In *4th International Conference on Mechanical and Aeronautical Engineering*, 2018.
- [yang-z2020] Yang Z., Yang L., and Zhang L. Eye-in-hand 3d visual servoing of helical swimmers using parallel mobile coils. In *IEEE Int. Conf. on Robotics and Automation*, Paris, May 31- August 31, 2020.
- [yang84] Yang D.C.H. and Lee T.W. Feasibility study of a platform type of robotic manipulator from a kinematic viewpoint. *J. of Mechanisms, Transmissions and Automation in Design*, 106(2):191–198, June 1984.
- [yao-r2012] Yao R., Li H., and Zhang X. A modeling method of the cable-driven parallel manipulator for FAST. In *1st Int. Conf. on cable-driven parallel robots (CableCon)*, Stuttgart, September, 3-4, 2012.
- [yao-s2018] Yao S. and others . Vision-based adaptive control of a 3-RRR parallel positioning system. *Science China Technology*, 61:253–1264, 2018.
- [yao-s2019] Yao S. and others . High-accuracy calibration of a visual motion measurement system for planar 3-dof robots using Gaussian process. *IEEE Sensors Journal*, 19(17):7659–7667, 2019.
- [yao2011] Yao J. and others . Spatially isotropic configuration of Stewart platform-based force sensor. *Mechanism and Machine Theory*, 46(2):142–155, February 2011.
- [yao2015] Yao J. and others . Isotropy analysis of redundant parallel six-axis force sensor. *Mechanism and Machine Theory*, 91:131–150, 2015.
- [yao2016] Yao J. and others . A 3D-printed redundant six components force sensor with eight parallel limbs. *Sensors and Actuators A*, 247:90–97, 2016.
- [yao2017] Yao J. and others . Dynamic analysis and driving force optimization of a 5-dof parallel manipulator with redundant actuation. *Robotics and Computer-Integrated Manufacturing*, 48:51–58, December 2017.
- [yaqing2007] Yaqing Z., Qi L., and Xiongwei L. Initial test of a wire-driven parallel suspension system for low speed wind tunnels. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [yasir2020] A. Yasir, Kiper G., and Can Dede M.I. Kinematic design of a non-parasitic 2R1T parallel mechanism with remote center of motion to be used in minimally invasive surgery applications. *Mechanism and Machine Theory*, 153, 2020.

- [yasuda2000] Yasuda T. and others . Experiments with a parallel robot with singularity-perturbed design. In *26th Ann. Conf. of the IEEE Indus. Electronics Society*, pages 217–222, Nagoya, October, 22-28, 2000.
- [yau2001] Yau C.L. Systems and methods employing a rotary track for machining and manufacturing, March, 6, 2001. United States Patent n° 6,196,081. **Keywords:** mechanical architecture, 6 dof robot, patent.
- [ye-h2020] Ye H. and others. Forward and inverse kinematics of a 5-dof hybrid robot for composite material machining. *Robotics and Computer-Integrated Manufacturing*, 65, 2020.
- [ye2014] Ye W. and others . A new family of reconfigurable parallel mechanisms with diamond kinematic chain. *Mechanism and Machine Theory*, 74:1–9, April 2014.
- [ye2014-1] Ye W. and others . A new family of reconfigurable parallel mechanisms with diamond kinematic chain. *Mechanism and Machine Theory*, 74:1–9, April 2014.
- [ye2016] Ye W. and others . Mobility variation of a family of metamorphic parallel mechanisms with reconfigurable hybrid limbs. *Robotics and Computer-Integrated Manufacturing*, 41:145–162, 2016.
- [ye2020] Ye W., Chai X., and Zhang K. Kinematic modeling and optimization of a new reconfigurable parallel mechanism. *Mechanism and Machine Theory*, 149, October 2020.
- [ye2020-1] Ye W., Zhang B., and Li Q. Design of a 1r1t planar mechanism with remote center of motion. *Mechanism and Machine Theory*, 149, 2020.
- [yedukondalu2015] Yedukondalu G., Srinath A., and Suresh Kumar J. Mechanical chest compression with a medical parallel manipulator for cardiopulmonary resuscitation. *Int J Med Robotics Comput Assist Surg*, 11:448–457, 2015.
- [yee91] Yee C.S. and Lim K.B. Neural network for the forward kinematics problem in parallel manipulator. In *IEEE Int. Joint Conf. on Neural Network*, pages 1699–1704, Singapore, November, 18-21, 1991.
- [yee97] Yee C.S. and Lim K.B. Forward kinematics solution of Stewart platform using neural network. *Neurocomputing*, 16(4):333–349, 1997.
- [yen2013] Yen P.-L. and Hung S.S. Cooperative force control of a hybrid Cartesian parallel manipulator for bone slicing. *Robotica*, 31(2):173–182, March 2013.
- [yi-l2007] Yi L. and Leinonen T. Computer simulation machining a 3D free form surface by using a 3-UPU parallel manipulator and a milling machine. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [yi-l2007-1] Yi L. and Leinonen T. Using cad variation geometric approach solving velocity/acceleration of a 4SPS & UPU parallel manipulator. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [yi-w2019] Yi W. and others . Optimal design and force control of a nine-cable-driven parallel mechanism for lunar takeoff simulation. *Chinese J. of Mechanical Engineering*, 32(73), 2019.
- [yi-y2004] Yi Y. and others . Generating classes of orthogonal Gough-Stewart platforms. In *IEEE Int. Conf. on Robotics and Automation*, pages 4969–4974, New Orleans, April, 28-30, 2004.
- [yi-y2004-1] Yi Y. and others . Optimum design of a class of fault tolerant isotropic Gough-Stewart platforms. In *IEEE Int. Conf. on Robotics and Automation*, pages 4963–4968, New Orleans, April, 28-30, 2004.
- [yi92] Yi B.-J., Freeman R.A., and Tesar D. Force and stiffness transmission in redundantly actuated mechanisms: the case for a spherical shoulder mechanism. In *22nd Biennial Mechanisms Conf.*, pages 163–172, Scottsdale, September, 13-16, 1992.
- [yi93] Yi B.-J. and Freeman R.A. Geometric characteristics of antagonistic stiffness in redundantly actuated mechanisms. In *IEEE Int. Conf. on Robotics and Automation*, pages 654–661, Atlanta, May, 2-6, 1993.
- [yi2001] Yi B.-J., Cox D., and Tesar D. Analysis and design criteria for a redundantly actuated 4-legged six degree-of-freedom parallel manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 3286–3293, Seoul, May, 21-26, 2001.



- [yi2002] Yi B.-J. and others . Design and experiment of a 3-DOF parallel micro-mechanism utilizing flexure hinges. In *IEEE Int. Conf. on Robotics and Automation*, pages 1167–1172, Washington, May, 11-15, 2002.
- [yi2003] Yi B.-J. and others . Design and experiment of a 3-DOF parallel micromechanism utilizing flexure hinges. *IEEE Trans. on Robotics and Automation*, 19(4):604–612, August 2003.
- [yilmaz2018] Yilmaz N. and others . External force/torque estimation on a dexterous parallel robotic surgical instrument wrist. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Madrid, October, 1-5, 2018.
- [yin-fw2020] Yin F.W. and others . A screw theory based approach to determining the identifiable parameters for calibration of parallel manipulators:. *Mechanism and Machine Theory*, 145, 2020.
- [yin94] Yin J.P. and Liang C.G. The forward displacement analysis of a kind of special platform manipulator. *Mechanism and Machine Theory*, 29(1):1–9, January 1994.
- [yin98] J.P. Yin, Marsh D., and Duffy J. Catastrophe analysis of planar three-spring systems. In *ASME Design Engineering Technical Conferences*, Atlanta, September, 13-16, 1998.
- [yiu2001] Yiu Y.K. and others . On the dynamics of parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 3766–3771, Seoul, May, 23-25, 2001.
- [yiu2001-1] Yiu Y.K. and Li Z.X. Modeling configuration space and singularities of parallel mechanisms. In *Int. Conf. on Mechatronics Technology (ICMT)*, pages 298–303, Singapore, June, 6-8, 2001.
- [yiu2003] Yiu Y.K., Meng J., and Li Z.X. Auto-calibration for a parallel manipulator with sensor redundancy. In *IEEE Int. Conf. on Robotics and Automation*, pages 3660–3665, Taipei, September, 14-19, 2003.
- [yong2009] Yong Y.K. and Lu T-F. Kinetostatic modeling of 3-RRR compliant micro-motion stages with flexure hinges. *Mechanism and Machine Theory*, 44(6):1156–1175, June 2009.
- [yoon-dk2012] Yoon D-K. and others . Autonomous human tracking of multiple robotic lamps. In *IEEE Int. Conf. on Robotics and Automation*, pages 3567–3572, Saint Paul, May, 14-18, 2012.
- [yoon-jh-2006] Yoon J.H. and others . Optimal trajectory generation of serially-linked parallel biped robots. In *IEEE Int. Conf. on Robotics and Automation*, pages 1610–1615, Orlando, May, 16-18, 2006.
- [yoon-wk-2004] Yoon W-K. and others . Stiffness analysis and design of a compact modified Delta parallel mechanism. *Robotica*, 22(5):463–475, September 2004.
- [yoon2000] Yoon J. and Ryu J. Control and evaluation of a new 6-dof haptic device using a parallel mechanism. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Takamatsu, Japan, October 30- November 5, 2000.
- [yoon2005] Yoon J. and Ryu J. A new family of hybrid 4-dof parallel mechanisms with two platforms and its application to a footpad device. *J. of Robotic Systems*, 22(5):287–298, 2005.
- [yoon2005-1] Yoon J. and Ryu J. A novel reconfigurable ankle/foot rehabilitation robot. In *IEEE Int. Conf. on Robotics and Automation*, pages 2301–2306, Barcelona, April, 19-22, 2005.
- [yoon2006] Yoon J. and Ryu J. A novel locomotion interface with two 6-dof parallel manipulators that allows human walking on various virtual terrains. *Int. J. of Robotics Research*, 25(7):689–708, July 2006.
- [yoon2016] Yoon J. and others . Multi-mode input shaping for vibration suppression on an overconstrained cable-driven parallel robot with cable stiffness. In *7th Int. Conf on Mechanical and Aerospace Engineering*, 2016.
- [yoon2017] Yoon J. and others . Adaptive control for cable driven parallel robots. In *17th International Conference on Control, Automation and Systems (ICCAS)*, Jeju, October, 18-21, 2017.
- [yoshida96] Yoshida K., Mavroidis C., and Dubowsky S. Impact dynamics of space long reach manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 1909–1916, Minneapolis, April, 24-26, 1996.
- [you-w2009] You W. and others . High efficient inverse dynamic calculation approach for a haptic device with pantograph parallel platform. *Multibody System Dynamics*, 21:233–247, 2009.

- [you211] You X. and others . Dynamic control of a 3-dof cable-driven robot based on backstepping technique. In *6th IEEE Conference on Industrial Electronics and Applications*, 2011.
- [youssef2020] Youssef K. and Otis M.J-D. Reconfigurable fully constrained cable driven parallel mechanism for avoiding interference between cables. *Mechanism and Machine Theory*, 148, 2020.
- [yu-a2008] Yu A., Bonev I.A., and Zsombor-Murray P. Geometric approach to the accuracy analysis of a class of 3-dof planar parallel robot. *Mechanism and Machine Theory*, 43(3):364–375, March 2008.
- [yu-g-2018] Yu G. and others . Stiffness modeling approach for a 3-dof parallel manipulator with consideration of nonlinear joint stiffness. *Mechanism and Machine Theory*, 123, 2018.
- [yu-g-2020] Yu G. and others . Optimal design of the three-degree-of-freedom parallel manipulator in a spray-painting equipment. *Robotica*, 38:1064–1081, 2020.
- [yu-h2010] Yu H. and others . Structural synthesis and variation analysis of a family of 6-dof parallel mechanisms with three limbs. *Int. J. of Robotics and Automation*, 25(2):121–131, 2010.
- [yu-h2016] Yu H. and others . Calibration and integration of B-Mode optical coherence tomography for assistive control in robotic microsurgery. *IEEE/ASME Trans. on Mechatronics*, 21(6), December 2016.
- [yu-j-2016] Ju J. and others . The best-approximate realization of a spatial stiffness matrix with simple springs connected in parallel. *Mechanism and Machine Theory*, 103:236–249, 2016.
- [yu-k2010] Yu K. and others . Enhanced trajectory tracking control with active lower bounded stiffness control for cable robot. In *IEEE Int. Conf. on Robotics and Automation*, pages 669–674, Anchorage, May, 3-8, 2010.
- [yu-s2018] Yu S. and others .  $\mu$ -based theory in compliant force control for space docking. *IEEE Access*, 2018.
- [yu-s2018-1] Yu S. and others . Force and moment compensation method based on three degree-of-freedom stiffness-damping identification for manipulator docking hardware-in-the-loop simulation system. *IEEE Access*, 2018.
- [yu-w2018] Yu W. and others . Design and kinematic analysis of a 3-translational-dof spatial parallel mechanism based on polyhedra. *Mechanism and Machine Theory*, 121:92–115, 2018.
- [yu-y2009] Yu Y. and others . Fuzzy logic based adjustment control of a cable-driven auto-leveling parallel robot. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, St Louis, October, 11-15, 2009.
- [yu-y2012] Yu Y. and Liang W. Design optimization for parallel mechanism using on human hip joint power assisting based on manipulability inclusive principle. In *IEEE Int. Conf. on Robotics and Automation*, pages 2306–2312, Saint Paul, May, 14-18, 2012.
- [yu-yq2011] Yu Y-Q. and others . An experimental study on the dynamics of a 3-RRR flexible parallel robot. *IEEE Trans. on Robotics*, 27(5):992–997, October 2011.
- [yu2001] Yu X. and others . Measuring data based non-linear error modeling for parallel machine-tool. In *IEEE Int. Conf. on Robotics and Automation*, pages 3535–3540, Seoul, May, 23-25, 2001.
- [yuan-h2014] Huan H., Courteille E., and Deblaise D. Elastodynamic analysis of cable-driven parallel manipulators considering dynamic stiffness of sagging cables. In *IEEE Int. Conf. on Robotics and Automation*, Hong-Kong, 7 May 31- June , 2014.
- [yuan-h2015] Yuan H., Courteille E., and Deblaise D. Static and dynamic stiffness analyses of cable-driven parallel robots with non-negligible cable mass and elasticity. *Mechanism and Machine Theory*, 85:64–81, March 2015.
- [yuan-h2015phd] Yuan H. *Static and Dynamic Stiffness Analysis of Cable-Driven Parallel Robots*. Ph.D. Thesis, INSA Rennes, Rennes, 2015. **Keywords:** wire robot,statics,stiffness.
- [yuan-h2017] Yuan H. and others . Vibration analysis of cable-driven parallel robot based on the dynamic stiffness matrix method. *Journal of Sound and Vibration*, 394:527–544, 2017.
- [yuan-wh2014] Yuan W-H. and Tsai M-S. A novel approach for forward dynamic analysis of 3-PRS parallel manipulators with consideration of friction effect. *Robotics and Computer-Integrated Manufacturing*, 30(3):315–325, June 2014.

- [yuan-x022] Yuan X. and others . Position error modeling and accuracy evaluation of n-dof translational parallel manipulators that can be transformed into n four-bar mechanisms based on motion/force transmissibility. *Mechanism and Machine Theory*, 176, 2022.
- [yuan2002] Yuan J., Wang Z., and Liu F. The fixed point method for structure calibration of parallel kinematics machine tool. In *3rd Chemnitzer Parallelkinematik Seminar*, pages 455–467, Chemnitz, April, 23-25, 2002.
- [yue-j2024] Yue J. and others . Design, analysis and optimization of a novel redundant (6+1)-degree-of-freedom parallel mechanism with configurable platform:. *Mechanism and Machine Theory*, 192, 2024.
- [yue2010] Yue Y. and others . Relationship among input-force, payload, stiffness and displacement of a 3-DOF perpendicular parallel micro-manipulator. *Mechanism and Machine Theory*, 45(5):756–771, May 2010.
- [yufeng95] Yufeng L. and Tingli Y. Structure types and characteristics of six degree-of-freedom closed-chain manipulators with all actuators on base. In *9th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 1795–1799, Milan, August 30- September 2, 1995.
- [yumei2000] Yumei H. and others . R&d of living assistant serial&parallel robot. Analysis of motion and function. In *IEEE Int. Workshop on Robot and Human Interactive Communication*, pages 427–429, Osaka, September, 27-29, 2000.
- [yun2011] Yun Y. and Li Y. Optimal design of a 3-PUPU parallel robot with compliant hinges for micromanipulator in a cubic workspace. *Robotics and Computer-Integrated Manufacturing*, 27(6):977–985, December 2011.
- [yuqi2017] Yuqi W. and others . Simulation experiment of flexible parallel robot control by RBF neural network based on sliding mode robust term. In *2nd Asia-Pacific Conference on Intelligent Robot Systems*, 2017.
- [zabalza2002] Zabalza I. and others . Tri-Scott. a new kinematic structure for a 6-dof decoupled parallel manipulator. In *Workshop on Fundamental Issues and Future Research Directions for Parallel Mechanisms and Manipulators*, pages 12–15, Québec, October, 3-4, 2002.
- [zabalza2002-1] Zabalza I. and others . A variant of a 6-RKS Hunt-type parallel manipulator to easily use insensitivity position configurations. In *ARK*, pages 291–300, Caldes de Malavalla, June 29- July 2, 2002.
- [zabalza2007] Zabalza I. and Ros J. Synthesis of a 6-RUS parallel manipulator using its stationary configurations. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [zaccaria2022] Zaccaria F., Ida E., Briot S., and Carricato M. Workspace computation of planar continuum parallel robots. *IEEE Robotics and Automation Letters*, 7(2), April 2022.
- [zago98] Zago L. and others . Extremely compact secondary mirror unit for the SOFIA telescope capable of 6-degree-of-freedom alignment plus chopping. In *SPIE Astronomical Telescopes and Instrumentation*, Kona, March, 20-28, 1998.
- [zago2000] Zago L. and others . Development and testing of a high-precision, high-stiffness linear actuator for the focus-center mechanism of the SOFIA secondary mirror. In *SPIE Astronomical Telescopes and Instrumentation*, Munchen, March, 27-31, 2000.
- [zake2019] Zake Z. and others . Vision-based control and stability analysis of a cable-driven parallel robot. *IEEE Robotics and Automation Letters*, 4(2), April 2019.
- [zake2021-phd] Zake Z. *Design and stability analysis of visual servoing on cable-driven parallel robots for accuracy improvement*. Ph.D. Thesis, LS2N, Nantes, 2021. **Keywords:** wire robot,statics,stiffness,accuracy,control.
- [zamanov84] Zamanov V.B and Sotirov Z.M. Structures and kinematics of parallel topology manipulating systems. In *Proc. Int. Symp. on Design and Synthesis*, pages 453–458, Tokyo, July, 11-13, 1984.
- [zamanov89] Zamanov V.B and Sotirov Z.M. Duality in mechanical properties of sequential and parallel robots. In *20th Int. Symp. on Industrial robots (ISIR)*, pages 1041–1050, Tokyo, October, 4-6, 1989.
- [zamanov91] Zamanov V.B and Sotirov Z.M. A contribution to the serial and parallel manipulator duality. In *8th IFToMM World Congress on the Theory of Machine and Mechanisms*, pages 517–520, Prague, August, 26-31, 1991.

- [zamanov92] Zamanov V.B and Sotirov Z.M. Parallel manipulators in robotics. In *IMACS/SICE Int. Symp. on Robotics, Mechatronics, and Manufacturing Systems*, pages 409–418, Kobe, September, 16-20, 1992.
- [zanganeh93] Zanganeh K.E. and Angeles J. The semigraphical solution of the direct kinematics of general platform-type parallel manipulators. In J. Angeles P. Kovacs, G. Hommel, editor, *Computational Kinematics*, pages 165–173. Kluwer, 1993. **Keywords:** forward kinematics.
- [zanganeh94] Zanganeh K.E. and Angeles J. Mobility and position analysis of a novel redundant parallel manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 3049–3054, San Diego, May, 8-13, 1994.
- [zanganeh94-1] Zanganeh K.E. and Angeles J. Instantaneous kinematics and design of a novel redundant parallel manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 3043–3048, San Diego, May, 8-13, 1994.
- [zanganeh94-2] Zanganeh K.E. and Angeles J. The direct kinematics of general parallel manipulators with minimum sensor data. In *ISRAM*, pages 333–338, Hawaiï, August, 14-18, 1994.
- [zanganeh94-3] Zanganeh K.E. and Angeles J. Instantaneous kinematics of modular parallel manipulators. In *ASME Design Automation Conf.*, pages 271–277, Minneapolis, September, 11-14, 1994.
- [zanganeh95] Zanganeh K.E. and Angeles J. On the isotropic design of general six-degree-of-freedom parallel manipulators. In J-P. Merlet B. Ravani, editor, *Computational Kinematics*, pages 213–220. Kluwer, 1995. **Keywords:** jacobian, isotropy, design.
- [zanganeh96] Zanganeh K.E. and Angeles J. Displacement analysis of a six-degree-of-freedom hand controller. In *IEEE Int. Conf. on Robotics and Automation*, pages 1281–1286, Minneapolis, April, 24-26, 1996.
- [zanganeh96-1] Zanganeh K.E., Sinatra R., and Angeles J. Dynamics of a six-degree-of-freedom parallel manipulator with revolute legs. In *World Automation Congress*, volume 3, pages 817–822, Montpellier, May, 28-30, 1996.
- [zanganeh97] Zanganeh K.E. and Angeles J. Kinematic isotropy and the optimum design of parallel manipulators. *Int. J. of Robotics Research*, 16(2):185–197, April 1997.
- [zanganeh97-1] Zanganeh K.E., Sinatra R., and Angeles J. Kinematics and dynamics of a six-degree-of-freedom parallel manipulator with revolute legs. *Robotica*, 15(4):385–394, July - August, 1997.
- [zanotto2014] Zanotto D. and others. Sophia-3: a semiadaptive cable-driven rehabilitation device with a tilting working plane. *IEEE Trans. on Robotics*, 30(4):974–979, August 2014.
- [zare2020] Zare S. and others. Kinematic analysis of an under-constrained cable-driven robot using neural networks. In *28 th Iranian Conference on Electrical Engineering (ICEE)*, 2020.
- [zare2022] Zare S. and others. Experimental study on the control of a suspended cable-driven parallel robot for object tracking purpose. *Robotica*, 40:3863–3877, 2022.
- [zare2018] Zarei M. Oscillation damping of non linear control systems based on the phase trajectory length concept: an experimental case study on a cable-driven parallel robot. *Mechanism and Machine Theory*, 126:377–396, 2018.
- [zarkandi2011] Zarkandi S. A new geometric method for singularity analysis of spherical mechanisms. *Robotica*, 40(7):475–504, 2022.
- [zarkandi2022] Zarkandi S. Task-based torque minimization of a 3-P $\underline{P}$ RR spherical parallel manipulator. *Robotica*, 40:475–504, March 2022.
- [zarkandi2022-1] Zarkandi S. Dynamic modeling and power optimization of a 4R $\underline{P}$ PSP+PS parallel flight simulator machine. *Robotica*, 40:616–671, March 2022.
- [zavatta2020] Zavatta M. and others. A vision-based referencing procedure for cable-driven parallel manipulators. *J. of Mechanisms and Robotics*, 12(4), August 2020.
- [zeid94] Zeid A.A., Overholt J.L., and Beck R.R. Modeling of multibody systems for control using general purpose simulation languages. *Simulation*, 67(1):7–19, January 1994.

- [zein2006] Zein M., Wenger P., and Chablat D. Singular curves and cusp points in the joint space of 3-RPR parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 777–782, Orlando, May, 16-18, 2006.
- [zein2006-1] Zein M., Wenger P., and Chablat D. An algorithm for computing cusp points in the joint space of 3-RPR parallel manipulators. In *1st European Conf. on Mechanism Science (Eucomes)*, Obergurgl, February, 21-26, 2006.
- [zein2007] Zein M., Wenger P., and Chablat D. Singular curves in the joint space and cusp points of 3-RPR parallel manipulators. *Robotica*, 25(6):712–724, November 2007.
- [zein2007-1] Zein M., Wenger P., and Chablat D. Singularity surfaces and maximal singularity-free boxes in the joint space of planar 3-RPR parallel manipulators. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [zein2008] Zein M., Wenger P., and Chablat D. Non-singular assembly-mode changing motions of a 3-RPR parallel manipulators. *Mechanism and Machine Theory*, 43(4):480–490, April 2008.
- [zeiwali2007] Zeiwali M. and Notash L. Fuzzy modelbased adaptive robust control for parallel manipulators. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [zeng-q2011] Zeng Q., Fang Y., and Ehmann K.F. Design of a novel 4-dof kinematotropic hybrid parallel manipulator. *ASME J. of Mechanical Design*, 133(12):121006–1/9, December 2011.
- [zeng-q2012] Zeng Q. and Fang Y. Structural synthesis and analysis of serial-parallel hybrid mechanisms with spatial multi-loop kinematic chains. *Mechanism and Machine Theory*, 49:198–215, March 2012.
- [zeng-q2014] Zeng Q. and Ehmann K.F. Design of parallel hybrid-loop manipulators with kinematotropic property and deployability. *Mechanism and Machine Theory*, 71:1–26, January 2014.
- [zeng-q2014-1] Zeng Q., Ehmann K.F., and Cao J. Tri-pyramid robot: Design and kinematic analysis of a 3-dof translational parallel manipulator. *Robotics and Computer-Integrated Manufacturing*, 30(6):648–657, December 2014.
- [zeng-q2016] Zeng Q., Ehmann K.F., and Cao J. Design of general kinematotropic mechanisms. *Robotics and Computer-Integrated Manufacturing*, 38:67–81, 2016.
- [zeng-q2016-1] Zeng Q., Ehmann K.F., and Cao J. Tri-pyramid robot: stiffness modeling of a 3-dof translational parallel manipulator. *Robotica*, 34(2):383–402, February 2016.
- [zeng-x2020] Zeng-x2020 . A parallel-guided compliant mechanism with variable stiffness based on layer jamming. *Mechanism and Machine Theory*, 148, 2020.
- [zeng2008] Zeng D., Huang Z., and Lu W. Performance analysis and optimal design of a 3-dof 3-RUR parallel mechanism. *ASME J. of Mechanical Design*, 130(4):042307–1/9, April 2008.
- [zhai98] Zhai S. User performance in relation to 3D input device design. *Computer Graphics*, 32(4):50–54, November 1998.
- [zhan2018] Zhan Z. and others . Error modelling and motion reliability analysis of a planar parallel manipulator with multiple uncertainties. *Mechanism and Machine Theory*, 124:55–72, 2018.
- [zhan2019] Zhan Z. and others . Unified motion reliability analysis and comparison study of planar parallel manipulators with interval joint clearance variables. *Mechanism and Machine Theory*, 138:58–75, 2019.
- [zhang-b2024] Zang B. and others . Synthetic design and analysis of the new feed cabin mechanism in five-hundred-meter aperture spherical radio telescope (FAST). *Mechanism and Machine Theory*, 191, 2024.
- [zhang-c2013] Zhan C. and Zhang L. Kinematic analysis and workspace investigation of a novel 2-dof parallel manipulator applied on vehicle driving simulator. *Robotics and Computer-Integrated Manufacturing*, 29(1):113–120, February 2013.
- [zhang-d2001] Zhang D. and Gosselin C.M. Kinetostatic modeling of N-DOF parallel mechanisms with a passive constraining leg and prismatic actuators. *ASME J. of Mechanical Design*, 123(3):375–384, September 2001.

- [zhang-d2002] Zhang D. and others . Design optimization of parallel kinematic toolheads with genetic algorithms. In *3rd Chemnitz Parallelkinematik Seminar*, pages 941–956, Chemnitz, April, 23-25, 2002.
- [zhang-d2002-1] Zhang D. and Gosselin C.M. Kinetostatic modeling of parallel mechanisms with a passive constraining leg and revolute actuators. *Mechanism and Machine Theory*, 37(6):599–617, June 2002.
- [zhang-d2002-2] Zhang D. and Gosselin C.M. Parallel kinematic machine design with kinetostatic model. *Robotica*, 20(4):429–438, July 2002.
- [zhang-d2004] Zhang D. and others . Optimum design of parallel kinematic toolheads with genetic algorithm. *Robotica*, 22(1):77–84, January 2004.
- [zhang-d2005] Zhang D. and Wang L. Web-based remote manipulation in advanced manufacturing. In *IEEE Int. Workshop on Business Service Network*, Hong-Kong, 2005.
- [zhang-d2005-1] Zhang D. and Wang L. Conceptual development of an enhanced tripod mechanism for machine tool. *Robotics and Computer-Integrated Manufacturing*, 21(4-5):318–327, - October 2005.
- [zhang-d2005-2] Zhang D. On stiffness improvement of the tricept machine-tool. *Robotica*, 23(3):377–386, May 2005.
- [zhang-d2005-3] Zhang D., Wang L., and Lang S.Y.T. Parallel kinematic machines: design, analysis and simulation in an integrated virtual environment. *ASME J. of Mechanical Design*, 127(4):580–588, July 2005.
- [zhang-d2007] Zhang D., Wang L., and Esmailzadeh E. *Industrial Robotics, Theory, Modelling and Control*, chapter Web-based remote manipulation of parallel robot in advanced manufacturing system, pages 659–694. pro literatur Verlag, January 2007. **Keywords:** 3 dof robot,web.
- [zhang-d2009] Zhang D., Bi Z., and Li B. Design and kinetostatic analysis of a new parallel manipulator. *Robotics and Computer-Integrated Manufacturing*, 25(4-5):782–791, August 2009.
- [zhang-d2011] Zhang D. and Zhang F. Design and analysis of a totally decoupled 3-dof spherical parallel manipulator. *Robotica*, 29(7):1093–1100, December 2011.
- [zhang-d2011-1] Zhang D. and Lei J. Kinematic analysis of a novel 3-dof actuation redundant parallel manipulator using artificial intelligence approach. *Robotics and Computer-Integrated Manufacturing*, 27(1):157–163, February 2010.
- [zhang-d2011-2] Zhang D. and others . Static balancing and dynamic modeling of a three-degree-of-freedom parallel kinematic manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 470–475, Shanghai, May, 9-13, 2011.
- [zhang-d2015] Zhang D. and Gao Z. Performance analysis and optimization of a five degrees-of-freedom hybrid parallel micromanipulator. *Robotics and Computer-Integrated Manufacturing*, 34:20–29, 2015.
- [zhang-d2017] Zhang D. and others . Kinematics, dynamics and stiffness analysis of a novel 3-dof kinematically/actuation redundant planar parallel mechanism. *Mechanism and Machine Theory*, 116:203–219, 2017.
- [zhang-f2018] Zhang F., Shang W., and Cong S. Choosing measurement configurations for kinematic calibration of cable-driven parallel robots. In *3rd Int. Conf. on Advanced Robotics and Mechatronics (ICARM)*, 2018.
- [zhang-gf-2004] Zhang G-F. and Gao X-S. Planar generalized Stewart platforms and their direct kinematics. In *5th Automated Deduction in Geometry (ADG)*, pages 198–211, Gainesville, September, 16-18, 2004.
- [zhang-gf-2012] Zhang G-F. Classification of direct kinematics to planar generalized Stewart platforms. *Computational geometry; Theory and Applications*, 45:485–473, 2012.
- [zhang-h2018] Zhang H. and others . Kinematic accuracy research of 2(3HUS+S) parallel manipulator for simulation of hip joint motion. *Robotica*, 36:1386–1401, 2018.
- [zhang-h2019] Zhang H. and others . A Newton-Raphson and BP neural network hybrid algorithm for forward kinematics of parallel manipulator. In *2nd WRC Symposium on Advanced Robotics and Automation*, Beijing, August, 21, 2019.

- [zhang-hx-2007] Zhang H-X. and others . Runtime reconfiguration of a modular mobile robot with serial and parallel mechanisms. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 2999–3004, San Diego, September, 22-26, 2007.
- [zhang-j2011] Zhang J. and others . A 6-dof heavy-load parallel manipulator with RFTA and its application. In *IEEE Int. Conf. on Robotics and Automation*, pages 470–475, Shangai, May, 9-13, 2011.
- [zhang-j2014] Zhang J. and others . Kinematic calibration of a 2-dof translational parallel manipulator. *Advanced Robotics*, 28(10):707–714, 2014.
- [zhang-j2016] Zhang J., Zhao Y., and Jin Y. Kinetostatic-model-based stiffness analysis of Exechon PKM. *Robotics and Computer-Integrated Manufacturing*, 37:208–220, 2016.
- [zhang-j2020] Zhang J. and others . Modeling and experimental study of a novel multi-dof parallel soft robot. *IEEE Access*, 2020.
- [zhang-j2020-1] Zhang J. and others . Design and implementation of novel fractional-order controllers for stabilized platforms. *IEEE Access*, 2020.
- [zhang-k2010] Zhang K. and Dai J.S. Geometry and constraint analysis of the three-spherical kinematic chain based parallel mechanism. *J. of Mechanisms and Robotics*, 2(3), August 2010.
- [zhang-k2012] Zhang K., Dai J.S., and Fang Y. Constraint analysis and bifurcated motion of the 3PUP parallel mechanism. *Mechanism and Machine Theory*, 49:256–269, March 2012.
- [zhang-l2011] Zhang L. and Song Y. Optimal design of the Delta robot based on dynamics. In *IEEE Int. Conf. on Robotics and Automation*, pages 336–341, Shangai, May, 9-13, 2011.
- [zhang-lj-2006] Zhang L-J. and others . Analysis of the workspace of 2-dof spherical 5r parallel manipulator. In *IEEE Int. Conf. on Robotics and Automation*, pages 1123–1128, Orlando, May, 16-18, 2006.
- [zhang-md94] Zhang M.D. and Song S.M. Study of three-degree-of-freedom parallel platforms for reactional compensation. In *ISRAM*, pages 373–378, Hawaiï, August, 14-18, 1994.
- [zhang-n2016] Zhang N. and Shang W. Dynamic trajectory planning of a 3-dof under-constrained cable-driven parallel robot. *Mechanism and Machine Theory*, 98:21–35, April 2016.
- [zhang-n2017] Zhang N., Shang W., and Cong S. Geometry-based trajectory planning of a 3-3 cable suspended parallel robot. *IEEE Trans. on Robotics*, 33(2):484–491, April 2017.
- [zhang-n2018] Zhang N., Huang P., and LI Q. Modeling, design and experiment of a remote-center-of-motion parallel manipulator for needle insertion. *Robotics and Computer-Integrated Manufacturing*, 50:193–202, 2018.
- [zhang-x2007] Zhang X., Mills J.K., and Cleghorn W.L. Dynamic modeling and experimental validation of a 3-PRR parallel manipulator with flexible intermediate links. *J. of Intelligent and Robotic Systems*, 50(4):324–340, December 2007.
- [zhang-x2009] Zhang X., Mills J.K., and Cleghorn W.L. Coupling characteristics of rigid body motion and elastic deformation of a 3-PRR parallel manipulator with flexible links. *Multibody System Dynamics*, 21:167–192, 2009.
- [zhang-x2010] Zhang X., Mills J.K., and Cleghorn W.L. Investigation of axial forces on dynamic propoerties of a flexible 3-PRR parallel manipulator moving with high speed. *Robotica*, 28(4):607–619, July 2010.
- [zhang-q2015] Zhang Q. and others . Dynamic model and input shaping control of a flexible link parallel manipulator considering the exact boundary conditions. *Robotica*, 33(6):1201–1230, July 2015.
- [zhang-x2016] Zhang X. and Zhang X. A comparative study of planar 3-RRR and 4-RRR mechanisms with joint clearances. *Robotics and Computer-Integrated Manufacturing*, 40:24–33, August 2016.
- [zhang-q2017] Zhang Q. and others . Smooth adaptive sliding mode vibration control of a flexible parallel manipulator with multiple smart linkages in modal space. *Journal of Sound and Vibration*, 411:1–19, 2017.
- [zhang-x2018] Zhang X. and Xu Q. Design, fabrication and testing of a novel symmetrical 3-dof large-stroke parallel micro/nano-positioning stage. *Robotics and Computer-Integrated Manufacturing*, 54:162–172, 2018.

- [zhang-q2019] Zhang Q. and others . Pose detection of parallel robot based on improved Hough-K-means and SURF algorithms. In *Jiangsu Annual Conference on Automation (JACA)*, 2019.
- [zhang-y-2000] Zhang Y. and Hesselbach J. Piezoelectric rotary-linear-actuators for miniaturised or micro parallel robot. In *7th Int. Conf. on New Actuators*, pages 371–374, Bremen, June, 19-20, 2000.
- [zhang-y-2007] Zhang Y., Gong J., and Gao F. Singularity elimination of parallel mechanisms by means of redundant actuation. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [zhang-y-2009] Zhang Y., Liu H., and Wu X. Kinematics analysis of a novel parallel manipulator. *Mechanism and Machine Theory*, 44(9):1648–1657, September 2009.
- [zhang-y-2009-1] Zhang Y. and others . Workspace analysis of a novel 6-dof cable-driven parallel robot. In *IEEE International Conference on Robotics and Biomimetics*, Guilin, December, 19-23, 2009.
- [zhang-y98] Zhang Y. and Duffy J. The optimum quality index for a redundant 4-4 in parallel manipulator. In *12th RoManSy*, pages 289–296, Paris, July, 6-9, 1998.
- [zhang-y2000] Zhang Y., Duffy J., and Crane C. The optimum quality index for a spatial redundant 4-8 in parallel manipulator. In *ARK*, pages 239–248, Piran, June, 25-29, 2000.
- [zhang-y2017] Zhang Y. and others . Zeroing dynamics based motion control scheme for parallel manipulators. *Electronic Letters*, 53(2):74–75, 2017.
- [zhang-y2018] Zhang Y. and others . CGA-based approach to direct kinematics of parallel mechanisms with the 3-RS structure. *Mechanism and Machine Theory*, 124:162–178, 2018.
- [zhang-y2018-1] Zhang Y. and others . Optimal zeroing dynamics with applications to control of serial and parallel manipulators. *Optim Control Appl Meth*, 39:1393–1406, 2018.
- [zhang-yc2002] Zhang Y-C. and Liu X-W. Force transmission index based workspace analysis of a six dof wire-driven parallel manipulator. In *ASME Design Engineering Technical Conference*, Montréal, September 29- October 2, 2002.
- [zhang-z2017] Zhang Z. and others . Optimal design of a high-speed pick-and-place cable-driven parallel robot. In *3rd Int. Conf. on cable-driven parallel robots (CableCon)*, Québec, 2017.
- [zhang-z2018] Zhang Z., Wang L., and Shao Z. Improving the kinematic performance of a planar 3-RRR parallel manipulator through actuation mode conversion. *Mechanism and Machine Theory*, 139:86–108, 2018.
- [zhang-z2019] Zhang Z., Cheng H.H., and Lau D. Efficient wrench-closure and interference-free conditions verification for cable-driven parallel robot trajectories using a ray-based method. *IEEE Robotics and Automation Letters*, 5(1):8–15, January 2019.
- [zhang-z2020] Zhang Z., Shao Z., and Wang L. Optimization and implementation of a high-speed 3-dofs translational cable-driven parallel robot. *Mechanism and Machine Theory*, 145, 2020.
- [zhang-z2020-1] Zhang Z. and others . Workspace analysis and optimal design of a translational cable-driven parallel robot with passive springs. *J. of Mechanisms and Robotics*, 12, October 2020.
- [zhang90] Zhang C-D. and Song S.M. Kinematics of parallel manipulators with a positional subchain. In *ASME Proc. of the 21th Biennial Mechanisms Conference*, volume 2, pages 271–278, Chicago, September, 16-19, 1990.
- [zhang91] Zhang C-D. and Song S.M. Forward kinematics of a class of parallel (Stewart) platforms with closed-form solutions. In *IEEE Int. Conf. on Robotics and Automation*, pages 2676–2681, Sacramento, April, 11-14, 1991.
- [zhang92] Zhang C-D. and Song S.M. Forward position analysis of parallel mechanisms with 3 general open-subchains based on selection of independent joints. In *ISRAM*, pages 377–384, Santa-Fe, November, 11-13, 1992.
- [zhang92-1] Zhang C-D. and Song S.M. Forward position analysis of nearly general Stewart platforms. In *22nd Biennial Mechanisms Conf.*, volume DE-45, pages 81–87, Scottsdale, September, 13-16, 1992.



- [zhang93] Zhang C-D. and Song S.M. A efficient method for inverse dynamics of manipulators based on the virtual work principle. *J. of Robotic Systems*, 10(5):605–627, July 1993.
- [zhang94] Zhang C-D. and Song S-M. Forward position analysis of nearly general Stewart platform. *ASME J. of Mechanical Design*, 116(1):54–60, March 1994.
- [zhao-c2020] Zhao C. and others . Stiffness modeling of n(3RR1S) reconfigurable series-parallel manipulators by combining virtual joint method and matrix structural analysis. *Mechanism and Machine Theory*, 152, 2020.
- [zhao-c2020-1] Zhao C. and others . Deformation analysis of a novel 3-dof parallel spindle head in gravitational field. *Mechanism and Machine Theory*, 154, 2020.
- [zhao-f2024] Zhao F. and others . In-hand manipulation using a 3-PRS-finger-based parallel dexterous hand with bidirectional pinching capability. *Mechanism and Machine Theory*, 192, 2024.
- [zhao-js-2005] Zhao J-S. and others . Analysis of the singularity of spatial parallel manipulator with terminal constraints. *Mechanism and Machine Theory*, 40(3):275–284, March 2005.
- [zhao-js-2006] Zhao J-S. and others . Mobility properties of a Schoenflies-type parallel manipulator. *Robotics and Computer-Integrated Manufacturing*, 22(1):124–133, 2006.
- [zhao-js-2008] Zhao J-S., Chu F., and Feng Z-J. Symmetrical characteristics of the workspace for spatial parallel mechanisms with symmetric structure. *Mechanism and Machine Theory*, 43(4):427–444, April 2008.
- [zhao-js-2008-1] Zhao J-S., Chu F., and Feng Z-J. *Parallel manipulators, Towards new applications*, chapter Mobility of spatial parallel manipulators, pages 467–496. ITECH, April 2008. **Keywords:** mobility.
- [zhao-js-2014] Zhao J-S., Chu F-L., and Feng Z-J. Kinematics of spatial parallel manipulators with tetrahedron coordinates. *IEEE Trans. on Robotics*, 30(1):233–243, February 2014.
- [zhao-q2019] Zhao Q., Guo J., and Hong J. Closed-form error space calculation for parallel/hybrid manipulators considering joint clearance, input uncertainty, and manufacturing imperfection. *Mechanism and Machine Theory*, 142, 2019.
- [zhao-q2020] Zhao Q., Guo J., and Hong J. Time-dependent system kinematic reliability analysis for planar parallel manipulators. *Mechanism and Machine Theory*, 152, 2020.
- [zhao-q2020-1] Zhao Q. and others . A novel approach to kinematic reliability analysis for planar parallel manipulators. *ASME J. of Mechanical Design*, 142, August 2020.
- [zhao-r2020] Zhao R., Wu L., and Chen Y-H. Robust control for nonlinear delta parallel robot with uncertainty: an online estimation approach. *IEEE Access*, 2020.
- [zhao-t2017] Zhao T. and others . Type synthesis and analysis of rotational parallel mechanisms with a virtual continuous axis. *Mechanism and Machine Theory*, 109:139–154, 2017.
- [zhao-t2018] Zhao T. and others . Design and analysis of a cable-driven parallel robot for waist rehabilitation. In *Int. Conf. on Mechatronics, Robotics and Automation*, 2018.
- [zhao-t2019] Zhao T. and others . Typical configuration analysis of a modular reconfigurable cable-driven parallel robot. *International Journal of Advanced Robotic Systems*, 2019.
- [zhao-ts2016] Zhao T-S. and others . Stiffness and singularity analysis of foldable parallel mechanisms for ship-based stabilized platform. *Robotica*, 34(4):913–924, April 2016.
- [zhao-x2000] Zhao X. and Peng S. Uncertainty configurations of parallel manipulators. *Robotica*, 18(2):209–211, March 2000.
- [zhao-x2000-1] Zhao X. and Peng S. Direct displacement analysis of parallel manipulators. *J. of Robotic Systems*, 17(6):341–345, 2000.
- [zhao-x2017] Zhao X., Zi B., and Quian L. Design, analysis, and control of a cable-driven parallel platform with a pneumatic muscle active support. *Robotica*, 35(4):744–765, April 2017.

- [zhao-x2018] Zhao X. and others . Type synthesis and analysis of parallel mechanisms with sub-closed-loops. *Mechanism and Machine Theory*, 120:140–165, 2018.
- [zhao-y2007] Zhao Y. and others . Dynamics analysis of a 5-UPS/PRPU parallel machine tool. In *12th IFToMM World Congress on the Theory of Machines and Mechanisms*, Besancon, June, 18-21, 2007.
- [zhao-y2009] Zhao Y. and Gao F. Inverse dynamics of the 6-dof out-parallel manipulator by means of the principle of virtual work. *Robotica*, 27(2):259–268, March 2009.
- [zhao-y2009-1] Zhao Y. and Gao F. Dynamic formulation and performance evaluation of the redundant parallel manipulator. *Robotics and Computer-Integrated Manufacturing*, 25(4-5):770–781, August 2009.
- [zhao-y2010] Zhao Y. and others . Elastodynamic characteristics comparison of the 8-PSS redundant parallel manipulator and its non-redundant counterpart- the 6-PSS parallel manipulator. *Mechanism and Machine Theory*, 45(2):291–303, February 2010.
- [zhao-y2011] Zhao Y. and Gao F. The joint velocity, torques and power capability evaluation of a redundant parallel manipulator. *Robotica*, 29(3):483–493, May 2011.
- [zhao-y2011-1] Zhao Y., Liu J.F., and Huang Z. A force analysis of a 3-RPS parallel mechanism by using screw theory. *Robotica*, 29(7):959–965, December 2011.
- [zhao-y2013] Zhao Y. Dimensional synthesis of a three translational degrees of freedom parallel robot while considering kinematic anisotropic property. *Robotics and Computer-Integrated Manufacturing*, 29(1):169–179, February 2013.
- [zhao-y2013-1] Zhao Y. Singularity isotropy and velocity transmission evaluation of a three translational degree-of-freedom parallel robot. *Robotica*, 31(2):193–202, March 2013.
- [zhao-y2013-2] Zhao Y. Dynamic optimum design of a three translational degrees of freedom parallel robot while considering anisotropic property. *Robotics and Computer-Integrated Manufacturing*, 29(1):100–112, February 2013.
- [zhao-y2015] Zhao Y. and others . Inverse kinematics and rigid-body dynamics for a three rotational degrees of freedom parallel manipulator. *Robotics and Computer-Integrated Manufacturing*, 31:40–50, February 2015.
- [zhao-y2016] Zhao Y. Dynamic optimum design of a  $3UPPS-PRU$  parallel robot. *International Journal of Advanced Robotic Systems*, 2016.
- [zhao-y2017] Zhao Y. and others . Constant motion/force transmission analysis and synthesis of a class of translational parallel mechanisms. *Mechanism and Machine Theory*, 108:57–74, 2017.
- [zhao-y2017-1] Zhao Y. and Cheng G. Dimensional synthesis of a 3UPS-PRU parallel robot. *Robotica*, 35(12):2319–2329, 2017.
- [zhao-y2018] Zhao Y. and others . The constant balancing 6UPS/(3PRRR)+S parallel mechanism and its balancing performance analysis. *Mechanism and Machine Theory*, 126:79–91, 2018.
- [zhao-y2021] Zhao Y. and others . A new hierarchical approach for the optimal design of a 5-dof hybrid serial-parallel kinematic machine. *Mechanism and Machine Theory*, 150, 2021.
- [zhao-y2021-1] Zhao Y., J. Mei., and Niu W. Vibration error-based trajectory planning of a 5-dof hybrid machine tool. *Robotics and Computer-Integrated Manufacturing*, 69, 2021.
- [zhao95] Zhao M. and others . Development of a redundant robot manipulator based on three dof parallel platform. In *IEEE Int. Conf. on Robotics and Automation*, pages 221–226, Nagoya, May, 25-27, 1995.
- [zhao98] Zhao M. and others . Development of an advanced manufacturing system based on parallel robot manipulators. In *27th Int. Symposium on Robotics*, pages 96–100, Birmingham, April 24- May 1, 1998.
- [zhen85] Zhen H. Modeling formulation of six-dof multi-loop parallel manipulator. In *SYROM*, volume II-1, pages 155–162, Bucarest, July, 4-9, 1985.

- [zheng-y2018] Zheng Y. and others . A Stewart isolator with high-static-low-dynamic stiffness struts based on negative stiffness magnetic springs. *Journal of Sound and Vibration*, 422:390–408, 2018.
- [zheng2016] Zheng K. and Zhang Q. Comprehensive analysis of the position error and vibration characteristics of Delta robot. *Advanced Robotics*, 30(20):1322–1340, 2016.
- [zhiyong2012] Zhuyong Y. and others . Digital platform-based multi-domain virtual prototype simulation on a high-speed parallel manipulator. *Robotica*, 30(5):827–835, September 2012.
- [zhou-q2020] Zhou Q. and others . Enumeration and optimum design of a class of translational parallel mechanisms with prismatic and parallelogram joints. *Mechanism and Machine Theory*, 150, 2020.
- [zhou-s2020] Zhou S., Sun J., and Gao F. Influence of flexible spherical joints parameters on accuracy of the six-axis force/torque sensor with three-three orthogonal parallel mechanism. *Mechanism and Machine Theory*, 145, 2020.
- [zhou-w2015] Zhou W. and others . A new forward kinematic algorithm for a general Stewart platform. *Mechanism and Machine Theory*, 87:177–190, 2015.
- [zhou-x2012] Zhou X., Tang C.P., and Krovi V. Analysis framework for cooperating mobile cable robots. In *IEEE Int. Conf. on Robotics and Automation*, pages 3128–3133, Saint Paul, May, 14-18, 2012.
- [zhou-x2014] Zhou X., S-K. Jun, and Krovi V. Tension distribution shaping via reconfigurable attachment in planar mobile cable robots. *Robotica*, 32(2):245–256, March 2014.
- [zhou-x2014-1] Zhou X., S-K. Jun, and Krovi V. Stiffness modulation exploiting configuration redundancy in mobile cable robots. In *IEEE Int. Conf. on Robotics and Automation*, Hong-Kong, 7 March 31- June , 2014.
- [zhou-y2011] Zhou Y. A closed-form algorithm for the least-squares trilateration problem. *Robotica*, 29:375–389, 2011.
- [zhou-z2006] Zhou H., Xi J., and Mechefske C.K. Modeling of a fully flexible 3PRS manipulator for vibration analysis. *ASME J. of Mechanical Design*, 128(2):403–412, March 2006.
- [zhou2003] Zhou K. and others . Singularity loci research on high speed travelling type of double four-rod spatial parallel mechanism. *Mechanism and Machine Theory*, 38(3):195–221, March 2003.
- [zhu-x2020] Zhu X. and others . Computer-aided mobility analysis of parallel mechanisms. *Mechanism and Machine Theory*, 148, 2020.
- [zhu2007] Zhu S-J., Huang Z., and Zhao M-Y. Singularity analysis for a 5-dof fully-symmetrical parallel manipulator 5-RRR(RR). In *IEEE Int. Conf. on Robotics and Automation*, pages 1189–1194, Roma, April, 10-14, 2007.
- [zhu2008] Zhu S-J., Huang Z., and Zhao M-Y. *Parallel manipulators, Towards new applications*, chapter Feasible human-spine motion simulators based on parallel manipulator, pages 497–506. ITECH, April 2008. **Keywords:** 5 dof robot, medical, mechanical architecture.
- [zhu2009] Zhu S-J., Huang Z., and Zhao M-Y. Singularity analysis for six practicable 5-dof fully-symmetrical parallel manipulators. *Mechanism and Machine Theory*, 44(4):710–725, April 2009.
- [zhuang91] Zhuang H. and Roth Z.S. A method for kinematic calibration of Stewart platforms. In *ASME Annual Winter Meeting*, volume 29, pages 43–49, Atlanta, December 1991.
- [zhuang93] Zhuang H. and Roth Z.S. Method for kinematic calibration of Stewart platforms. *J. of Robotic Systems*, 10(3):391–405, 1993.
- [zhuang96] Zhuang H. and Liu L. Self calibration of a class of parallel manipulators. In *IEEE Int. Conf. on Robotics and Automation*, pages 994–999, Minneapolis, April, 24-26, 1996.
- [zhuang97] Zhuang H. and Wang Y. A coordinate measuring machine with parallel mechanisms. In *IEEE Int. Conf. on Robotics and Automation*, pages 3256–3261, Albuquerque, April, 21-28, 1997.
- [zhuang97-1] Zhuang H. Self calibration of parallel mechanisms with a case study on Stewart platform. *IEEE Trans. on Robotics and Automation*, 13(3):387–397, June 1997.

- [zhuang98] Zhuang H., Yan J., and Masory O. Calibration of Stewart platforms and other parallel manipulators by minimizing inverse kinematic residuals. *J. of Robotic Systems*, 15(7):395–405, 1998.
- [zi2008] Zi B. and others . Dynamic modeling and active control of a cable-suspended parallel robot. *Mechatronics*, 18(1):1–12, January 2008.
- [zi2011] Zi B., Zhu Z-C., and Du J-L. Analysis and control of the cable-supporting system including actuator dynamics. *Control Eng. Practice*, 19:491–501, 2011.
- [zi2014] Zi B. and others . Integrated mechanism design and control for completely restrained hybrid-driven based cable parallel manipulators. *J. of Intelligent and Robotic Systems*, 74(3):643–661, June 2014.
- [zi2015] Zi B., Lin J., and Quian S. Localization, obstacle avoidance planning and control of a cooperative cable parallel robot for multiple mobile cranes. *Robotics and Computer-Integrated Manufacturing*, 34:105–123, August 2015.
- [zi2017] Zi B., Su H., and Zhang D. Design, analysis and control of a winding hybrid-driven cable parallel manipulator. *Robotics and Computer-Integrated Manufacturing*, 48:196–208, December 2017.
- [zibil2007] Zibil A. and others . An explicit method for determining the force-moment capabilities of redundantly actuated planar-parallel manipulators. *ASME J. of Mechanical Design*, 129(10):1046–1055, October 2007.
- [zitzewitz2009] Zitzewitz J. and others . A versatile wire robot concept as a haptic interface for sport simulation. In *IEEE Int. Conf. on Robotics and Automation*, Kobe, May, 14-16, 2009.
- [zlatanov92] Zlatanov D., Dai M.Q., Fenton R.G., and Benhabib B. Mechanical design and kinematics analysis of a three-legged six degree-of-freedom parallel manipulator. In *22nd Biennial Mechanisms Conf.*, volume DE-45, pages 529–536, Scottsdale, September, 13-16, 1992.
- [zlatanov95] Zlatanov D., Fenton R.G., and Benhabib B. A unifying framework for classification and interpretation of mechanism singularities. *ASME J. of Mechanical Design*, 117(4):566–572, December 1995.
- [zlatanov98] Zlatanov D., Fenton R.G., and Benhabib B. Identification and classification of the singular configurations of mechanisms. *Mechanism and Machine Theory*, 33(6):743–760, August 1998.
- [zlatanov2001] Zlatanov D. and Gosselin C.M. A family of new parallel architectures with four degrees of freedom. In F.C. Park C.C. Iurascu, editor, *Computational Kinematics*, pages 57–66. EJCK, May, 20-22, 2001. **Keywords:** mechanical architecture, 4 dof robot.
- [zlatanov2001-1] Zlatanov D., Bonev I.A., and Gosselin C.M. Constraint singularities as configuration space singularities. September, 6, 2001, <http://www.parallemic.org/Reviews/Review008.html>. **Keywords:** singularity, 3 dof robot.
- [zlatanov2001-2] Zlatanov D., Bonev I.A., and Gosselin C.M. Constraint singularities. July, 5, 2001, [www.parallemic.org/Reviews/Review005.html](http://www.parallemic.org/Reviews/Review005.html). **Keywords:** singularity, 3 dof robot.
- [zlatanov2002] Zlatanov D., Bonev I.A., and Gosselin C.M. Constraint singularities as configuration space singularities. In *ARK*, Caldes de Malavalla, June 29- July 2, 2002.
- [zlatanov2002-1] Zlatanov D., Bonev I.A., and Gosselin C.M. Constraint singularities of parallel mechanisms. In *IEEE Int. Conf. on Robotics and Automation*, pages 496–502, Washington, May, 11-15, 2002.
- [zobel96] Zobel P.B., Di Stefano P., and Raparelli T. The design of a 3 dof parallel robot with pneumatic drives. In *27th Int. Symp. on Industrial Robots (ISIR)*, pages 707–710, Milan, October, 6-8, 1996.
- [zoppi2003] Zoppi M. and others . Constraint singularities of force transmission in nonredundant parallel robots with less than six degrees of freedom. *ASME J. of Mechanical Design*, 125(3):557–563, September 2003.
- [zoppi2004] Zoppi M., Bruzzone L.E., and Molfino R.M. Position analysis of a class of translational parallel mechanisms. *Int. J. of Robotics and Automation*, 19(3):111–116, 2004.
- [zoppi2004-1] Zoppi M., Bruzzone L.E., and Molfino R.M. A novel 5-dof interconnected-chains PKM for manufacturing revolute surfaces. In *4th Chemnitzer Parallelkinematik Seminar*, Chemnitz, April, 20-21, 2004.

- [zoppi2005] Zoppi M. and Molfino R.M. Forward kinematics equations of a 3-dof hybrid PM for underwater camera active support. In *Fifth International Workshop on Robot Motion and Control*, 2005.
- [zoppi2006] Zoppi M., Zlatanov D., and Molfino R.M. On the velocity analysis of non-parallel closed chain mechanisms. In *ARK*, pages 65–72, Ljubljana, June, 26-29, 2006.
- [zoppi2008] Zoppi M., Sieklicki W., and Molfino R. Design of a micro-robotic wrist for needle laparoscopic surgery. *ASME J. of Mechanical Design*, 130(10):102306–1/102306–8, October 2008.
- [zoso2012] Zoso N. and Gosselin C.M. Point-to-point motion planning of a parallel 3-dof underconstrained cable-suspended robot. In *IEEE Int. Conf. on Robotics and Automation*, pages 2325–2330, Saint Paul, May, 14-18, 2012.
- [zsombor95] Zsombor-Murray P., Husty M., and Hartmann D. Singular Stewart-Gough platforms with spherocylindrical and spheroconical hip joint trajectories. In *9th IFToMM World Congress on the Theory of Machines and Mechanisms*, pages 1886–1890, Milan, August 30- September 2, 1995.
- [zsombor2001] Zsombor-Murray P. and Gferrer A. Kinematics of a two-legged manipulator with actuated spherical joints. In F.C. Park C.C. Iurascu, editor, *Computational Kinematics*, pages 11–20. EJCK, May, 20-22, 2001. **Keywords:** mechanical architecture, kinematics, 6 dof robot.
- [zsombor2002] Zsombor-Murray P.J. and Cervantes-Sanchez J. 3-legged spatial 4-bar platform kinematics. In *ARK*, pages 379–386, Caldes de Malavalla, June 29- July 2, 2002.
- [zsombor2014] Zsombor-Murray P.J. Direct kinematics of an orthogonal 6PRRS parallel manipulator. In *ARK*, pages 21–29, Ljubljana, June 29- July 3, 2014.
- [zubizarreta2008] Zubizarreta A. and others . Control of parallel robots using passive sensor data. In *IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, pages 2398–2403, Nice, France, September, 22-26, 2008.
- [zubizarreta2010] Zubizarreta A. and others . Dynamic modeling of planar parallel robots considering passive joint sensor data. *Robotica*, 28(5):649–661, September 2010.
- [zubizarreta2011] Zubizarreta A. and others . A procedure to evaluate extended computed torque control configurations in the Stewart–Gough platform. *Robotics and Autonomous Systems*, 59:770–781, 2011.
- [zubizarreta2012] Zubizarreta A. and others . Redundant sensor based control of the 3RRR parallel robot. *Mechanism and Machine Theory*, 54:1–17, August 2012.
- [zubizarreta2013] Zubizarreta A. and others . A redundant dynamic model of parallel robot for model-based control. *Robotica*, 31(2):203–216, March 2013.
- [zuccon2023] Zuccon G. and others . Vibrations of cable-suspended rehabilitation robots. *Robotica*, 41:3702–3723, 2023.
- [zuo2002] Zuo A., Wu Q.M.J., and Gruver W.A. Stereo vision guided control of a Stewart platform. In *Int. Symp. on Intelligent Control*, pages 125–130, Vancouver, October, 27-30, 2002.