

Nationality: French
Date of birth: May the 2nd, 1970
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SENIOR RESEARCH SCIENTIST (DIRECTEUR DE RECHERCHE) AT INRIA, PH.D. IN COMPUTER SCIENCE,
SPECIALIZED IN 3D IMAGE AND DATA PROCESSING FOR MEDICAL IMAGE ANALYSIS

Research Interests

Mathematical Image Analysis, Geometric Data Processing, Geometry and Statistics, Medical and Functional Image Analysis, Feature-based and Image-based Registration, Algorithms Performances, Shape Statistics.

Education

- 2006** **Habilitation à diriger des recherches (HDR), Nice-Sophia Antipolis University** in Computer Science
- 1996** **Ph.D., École Polytechnique, Paris, France**, in Computer Science, with highest honors.
- 1993** **Master degree (DEA), École Polytechnique - École Normale Supérieure, Paris, France**, in Mathematical Computer Science and Applications, specialization in Geometric Computing, with highest honors.
- 1992** **Graduate of the École Polytechnique, Paris, France.** Specialization in Computer Science and Physics.
- 1987** **Baccalauréat** in Mathematics and Techniques, with highest honors.

Positions

- 2015** 3 month visit at Stanford Statistics Department, Palo-Alto, CA, USA.
- 2014 -** Senior Research Scientist (DR1) at INRIA, Asclepios team.
- 2007-2013** Senior Research Scientist (DR2) at INRIA, Asclepios team.
- 2000-2007** Junior Research Scientist (CR1) at INRIA, Epidaure / Asclepios team.
- 1999-2003** Consultant for AREALL (Paris): *registration for surgical navigation in dental implantology.*
- 1998-2000** Junior Research Scientist (CR2) at INRIA, Epidaure team.
- 1998** Postdoctoral/Expert Engineer INRIA, Epidaure team.
- 1997** Postdoctoral Associate at MIT, Artificial Intelligence Lab, Vision Group.
- 1993-1996** Ph.D. student at INRIA, Epidaure team.
- 1993** Master degree research training period (6 months) at INRIA, Epidaure team.
- 1992** Graduate degree research training period (4 months) at ONERA Châtillon, DMI-GIA (FRANCE).
- 1990** Military service: company commanding officer in the French Air Force.

Professional activities

Conference Organization

- **MFCA** (Mathematical Foundations of Computational Anatomy): **Founder and General Chair**.
 - **MFCA'17**, Quebec, Canada, September 14, 2017.
 - **MFCA'15**, Munich, Germany, October 9, 2015.
 - **MFCA'13**, Nagoya, Japan, September 22, 2013.
 - **MFCA'11**, Toronto, September 22, 2011.
 - **MFCA'08**, New York, September 6, 2008.
 - **MFCA'06**, Copenhagen, October 1st, 2006.
- **TGSI 2017** (Topological and Geometrical Structure of Information), Aug. 28 - Sept. 1 2017, CIRM Luminy (FR): **Conference coorganizer**.
- **MICCAI** (Int. Conf. on Medical Image Computing and Computer Assisted Intervention):
 - MICCAI 2007, 2009, 2011, 2012, 2013, 2014: **Program Committee member**.
 - **MICCAI 2012**, Nice October 1-5: **Workshops, Tutorials and Challenges chair** and member of the **local organization committee**. Coordination of 32 MICCAI satellite events with 140 organizers and 975 participants.
 - **MICCAI 2009**, London, Sept. 20-24: **Workshop co-chair**.
- **STIA** (Spatio-Temporal Image Analysis for Longitudinal and Time-Series Image Data):
 - **STIA 2014**, Cambridge, MA, USA, Sept. 22, 2014: **Workshop coorganizer**.
 - **STIA 2010**, Beijing, China, Sept. 20, 2010: **Workshop coorganizer**.
- **IPMI** (Information Processing in Medical Images):
 - **IPMI 2013**, Asilomar, CA, USA, 2013: **Paper selection committee**.
 - **IPMI 2017**, Boone, NC, USA, 2017: **Paper selection committee**.
- **ISBI** (International Symposium on Biomedical Imaging)
 - **ISBI 2017**, April 18-21, Melbourne, Australia. **Area Chair**.
 - **ISBI 2015**, April 16-19, New York, USA. **Area Chair**.
- **ICPR 2014** (International Conference on Pattern Recognition), August 24-28, Stockholm, Sweden. **Area chair** in Biomedical Image Analysis.
- **Health-e-Child conference**, Sestri-Levante, Italy, April 23-24, 2010. **Virtual Physiological Human track organizer**.
- **Medical Physics and Biomedical Engineering World Congress 2009**, Theme 4 (Image Processing, Biosignal Processing, Modelling and Simulation, Biomechanics), Registration and Segmentation **track chair**.
- **Geometry of shapes Workshop** (Math in the Mine), June 26 - July 2, 2016, Minière de Vallauria, Alpes Maritimes, FR. **Organizer**.

Editorial Board of Journals

- **Medical Image Analysis journal (MedIA) (Elsevier) since 2008**. IF 2016: 4.188.
- **International Journal of Computer Vision (IJCV) (Springer) since 2009**. IF 2016: 8.222.
- **SIAM Journal on Imaging Sciences (SIIMS) since 2010**. IF 2016: 2.485.
- **Journal of Mathematical Imaging and Vision since 2014**. IF 2016: 1.994.

Journal Reviewer for: Biometrika, Chaos, Proceedings on the London Mathematical Society (PLMS), Proc. of the Nat. Academy of Science (PNAS), Journal of Computational and Applied Mathematics (JCAM), Foundations of Computational Mathematics (FoCM), Methods of Information in Medicine (MIM), NeuroImage (NIMG), Journal of Machine Learning Research (JMLR), IEEE Trans. in Medical Imaging (IEEE TMI), Medical Image Analysis (MedIA), Signal Processing (SIGPRO), Computer Aided Surgery (CAS), International Statistical Reviews (ISR), Journal of Mathematical Imaging and Vision (JMIV), IEEE Trans. on Robotics and Automation, Int. Journal of Computer Vision (IJCV), IEEE Trans. on Image Processing (IEEE TIP), Image and Vision Computing (IMAVIS), IEEE Trans. Pattern Analysis and Machine Intelligence (PAMI), Computer Vision and Image Understanding (CVIU), IEE Proceedings - Vision, Image and Signal Processing, Traitement du Signal (TS).

Conferences and Workshops Review Committees

- MICCAI (Medical Image Computing and Computer Assisted Intervention) 2002 to 2010 (except 2007 and 2009 where PC member), 2015, 2016.
- IPMI (Information Processing in Medical Images) 2007, 2009, 2011, 2015.
- MMBIA (IEEE W. on Math. Methods in Biomed. Image Analysis) 2006, 2007, 2008, 2010, 2012.
- WBIR (W. on Biomed. Image Registration) 2003, 2006, 2010, 2012, 2014, 2016.
- ISBI (Int. Symposium on Biomedical Imaging) 2002, 2004, 2006, 2007, 2008.
- RFIA RFP 2016 (Reconnaissance de Formes et Perception).
- CDMRI (Computational Diffusion MRI) 2008, 2010, 2011, 2012, 2013, 2014.
- HP-MICCAI / MICCAI-DCI (High Perf. and Distributed Comp. for Med. Imaging) 2011, 2013, 2014.
- MCV (MICCAI workshop on Medical Computer Vision) 2010, 2013, 2014.
- NORDIA (W. on Non-Rigid Shape Analysis and Deformable Image Alignment) 2008, 2011, 2014.
- Diff-CVML (Int. W. on Differential Geometry in Computer Vision) 2016, 2017.
- VG (IEEE/EG Int. Symp. on Volume Graphics) 2007, 2008, 2010.
- ManifLearn 2017, ECCV 2016, STACOM 2010, Mathematics of Surfaces 2009, PPMIA 2009, MICCAI-grid 2008, MLMI 2008, CVPR 2006, SA2PM 2006, DEFORM 2006, EUROGRAPHICS 2005, DI-DAMIC 2004, AMI-ARCS 2004, HealthGrid 2003, FIMH 2003, GRETSI 2003, IJCAI 1999.

Services to the community

- International
 - [MICCAI Society boards of Directors](#) (2012-2015).
 - **Member of the panel** for the joint FLAG-ERA Joint / HBM flagship Transnational Call (JTC), 2015.
 - **Member of the jury** for [Life Science 2014 call](#) of the the Vienna Science and Technology fund ([WWTF](#)), 2014.
 - **EU reviewer for the STREP PredictAD** (neuroimaging in Alzheimer’s disease), January 2012.
 - **On site project review committee for the Science Foundation Ireland (SFI)** in 2010.
 - Evaluator for:
 - the European Research Council (**ERC**) in 2017 & 2013 (StG); the Council of Physical Science of the Netherlands Organization for Scientific Research (**NWO, NL**) in 2011, 2013; the Science Foundation Ireland (**SFI, IR**) in 2011; the Banff International Research Station for Mathematical Innovation and Discovery (**BIRS, CA**) in 2009; the National Sciences and Engineering Research Council of Canada (**NSERC, CA**) in 2009 and 2010; the University of Liege in 2009; Fonds de la Recherche Scientifique (**FNRS, BE**) in 2010, 2011, 2016; the Air Force Office of Scientific Research (**AFOSR, US**) in 2009; the US-Israel Binational Science Foundation (**BSF, US, IL**) in 2010;

- National (FR)
 - Committee for International Chairs, INRIA, 2017, 2018.
 - Commission de spécialistes PR26 (Math professor search committee) at Toulouse university, 2011.
 - **Jury of the Gilles Kahn SPECIF PhD award** (2006, 2009);
 - **Visiting committee of the French Agence d’Evaluation de la Recherche (AERES)** for the creation of a research unit in 2009.
 - Evaluator for: the French Agence Nationale de la Recherche (**ANR**), 2009 to 2013, 2017; the **University Grenoble Alpes** in 2016; the Ecole Normale Supérieure PhD fellowships (**ENS Cachan**) 2016; the French Cluster of research in Information Science and Technology (**Digitéo**) in 2011; the French National Center for Scientific Research **CNRS** (PEPII) in 2011.
- Local (Nice Sophia-Antipolis, FR)
 - Ecole doctorale STIC (EDSTIC) of the University Cote d’Azur: Deputy Director (2017-), member of the board (2016-).
 - Steering committee of the University Côte d’Azur academy 4 on “Living systems Complexity and diversity” (2016-).
 - ”Comité de la Recherche Biomédicale en Santé Publique (CRBSP)” of the Nice hospitals (2016-).
 - In charge of the relationship between Inria-Sophia Antipolis Méditerranée research center and the Nice University Department (Faculté de Medecine) (2013-).
 - Doctoral follow-up Committee (CSD) at INRIA Sophia Antipolis (2010-).
 - Comité de Centre of Inria Sophia-Antipolis Méditerranée (2013-2016).
 - International Master 2 “Computational Biology” (Master IFI of the university of Nice): Steering committee (2009-2015); Co-responsible of the master (2015-2017).
 - Working Group on Incentive Actions (GTAI) of the Scientific and Technological Orientation Council (COST) of INRIA in 2011;
 - Recruiting committee for the INRIA - University of Nice chair of Digital Medicine in 2009.

Participation to PhD and HDR committees

- Baptiste Moreau, University of Montpellier II, FR, March 2018. Reviewer.
- Rémi Agier, INSA Lyon, FR, 2017. Reviewer,
- Joan Alexis Glaunes (HDR), U. Paris Descartes, FR, 2017.
- Alice Le Briguant, U. Bordeaux, FR, July 2017. Reviewer.
- Jean-Baptiste Schiratti, University Paris Saclay, FR, January 2017.
- Thomas Benseghir, University of Nice-Sophia Antipolis, FR, 2015. President of the jury.
- Laurence Rouet (HDR), U. Paris-Decsartes, FR, 2015. Reviewer.
- Stéphanie Allassonnière (HDR), ENS Cachan, FR, Novembre 2013. Reviewer.
- Fabrice Michel, Ecole Centrale, FR, Octobre 2013. Reviewer.
- Aymeric Stamm, university of Rennes, FR, Novembre 2103.
- Kevin Sol, University of Montpellier II, FR, December 2013. Reviewer.
- Jean-Baptiste Fiot, University Paris Dauphine, FR, September 2013. Reviewer.
- Barthélémy Serres, University of Tours, FR, July 2013. President of the jury.
- Nicolas Duchateau, U. Pompeu Fabra, Barcelona, SP, 2012. President of the jury.
- Le Yang, University of Poitier, FR, December 2011. Reviewer.

- Marc Modat, University College London, UK, November 2011. External examiner.
- Aristeidis Sotiras, Ecole centrale Paris, FR, November 2011.
- Rémi Cuingnet, University Paris XI Orsay, FR, March 2011, Reviewer.
- Mickaël Savinaud, Ecole centrale Paris, FR, October 2010.
- Manik Bhattacharjee, University Paris XI Orsay, FR, December 2009, Reviewer.
- Guillaume Auzias, University Paris XI Orsay, FR, November 2009, Reviewer.
- Matthieu Perrot, Ecole normale supérieure, Cachan, FR, October 2009, Reviewer.
- Mickaël Péchaud, Ecole Normale Supérieure, Cachan, FR, September 2009. Reviewer.
- Chafik Samir, Telecom-Lille and Science and Technology University of Lille, FR, September 2007.
- Niels Holm Olsen, IT University of Copenhagen, DK, March 2003. Opponent.
- L. Devillier, 2017; R.-Ph. Mollero, 2017; M.-M. Rohé, 2017; N. Miolane, 2016; M. Hadj-Hamou, 2016; B. Khanal, 2016; V. Gupta, 2015; K. McLeod, 2013; M. Lorenzi, 2012; Ch. Seiler, 2012; S. Durrleman, 2010; Th. Mansi, 2010; H. Hufnagel, 2010; P. Fillard, 2008; T. Vercauteren, 2008; T. Glatard, 2007; V. Arsigny, 2006; R.-C. Stefanescu, 2005; S. Nicolau, 2004; G. Flandin, 2004; S. Granger, 2003; P. Cachier, 2002. Supervisor / co-supervisor.

Invited talks

Plenary talks in conferences

1. [Statistics for Data with Geometric Structure](#), Mathematisches Forschungsinstitut Oberwolfach (DE), 21-27 January 2018.
2. [Mathematics and Image Analysis \(MIA 2018\)](#), 15-17 January 2018, Berlin, Germany.
3. [Computational Brain Connectivity Mapping Winter School Workshop \(CoBCoM 2017\)](#), November 20-24 2017, Juan-les-Pins, France.
4. [3rd Int. W on Differential geometry in Comp. Vis. and Machine Learning \(DIFF-CVML\)](#), Hawaii, USA, 21 July 2017.
5. [VIth Int. W. on Representation, analysis and recognition of shape and motion From Imaging data \(RFMI 2016\)](#), Sidi Bou Said village, Tunisia, October 27-29 2016.
6. [International Workshop on Geometry, PDE's and Lie Groups in Image Analysis](#), Eindhoven (NL) 24-26 August 2016.
7. [Workshop on Geometry and Stochastics of Nonlinear, Functional and Graph Data](#), Bornholm (DK), 15-19 August 2016.
8. [12th IEEE IVMSP Workshop 2016](#), Bordeaux (FR), July 11-12, 2016.
9. [Statistical Analysis of Manifold-Valued Data and Beyond: Nottingham workshop](#), 4-6 April 2016, UK.
10. [Mathematical Imaging and Surface Processing](#), Mathematisches Forschungsinstitut Oberwolfach (DE), 24-30 January 2016.
11. [Programme on Infinite-Dimensional Riemannian Geometry](#) with Applications to Image Matching and Shape Analysis, Schrödinger institute, Vienna, February 2015.
12. [2015 Joint Mathematics Meetings \(AMS/MAA\)](#) AMS Special Session on Differential Geometry and Statistics, San Antonio, Texas, January 2015.
13. [Geometry of Information and Optimization \(GIO\)](#), Bordeaux, December 4-5, 2014.
14. [Geometrical Models in Vision workshop](#), semester on Geometry, Analysis and Dynamics on Sub-Riemannian Manifolds, Institut Henry Poincaré, Paris - October 22nd-24th, 2014.

15. [MICCAI PC Workshop](#), Cambridge, MA, USA, May 16, 2014.
16. [Seminar at Collège de France](#) within the chair "Informatique et sciences numériques" of Nicholas Aya-ache on the personalized digital patient, Paris, May 13, 2014.
17. [Symposium on Statistical Shape models & Applications \(Shape 2014\)](#), Delémont, Swiss, June 11-13 2014. Keynote speaker.
18. [IMA Annual Program Year Workshop on Topological Structures in Computational Biology](#), Minneapolis, US, December 9-13, 2013.
19. [Advances in Matrix Functions and Matrix Equations \(FUN13\)](#), Manchester, UK, April 10-12, 2013.
20. [Distinguished seminar series, SCI institute](#), Salt-Lake City, February 13 2013.
21. [Geometric Mechanics and Shape, NZMRI workshop 2013](#), Ohope beach, New Zealand, January 13-19, 2013.
22. [Geometry and Statistics in Bioimaging: Manifolds and Stratified Spaces](#), Sonderborg, DK, October 8-12, 2012.
23. [STACOM 2012](#) (MICCAI workshop and challenge on Statistical Atlases and Computational Models of the Heart: Imaging and Modeling Challenges), Nice, October 5, 2012.
24. [1ères rencontres Technologies de l'Information et de la Communication pour la santé mentale](#), 21 et 22 octobre 2011, Nice et Monaco.
25. [Geometry for Anatomy](#), Banff International Research Station for Mathematical Innovation and Discovery (BIRS) workshop, Banff, Alberta, Canada, Aug. 28 - Sep. 2, 2011.
26. [Fields-MITACS Conference on Mathematics of Medical Imaging, Fields Institute](#), Toronto, Canada, June 20-24, 2011.
27. [Workshop on Manifold Learning, Hausdorff Research Institute for Mathematics](#), Bonn, Germany, May 30 - June 3, 2011. ([Abstracts book](#)).
28. [Colloquium "Le modèle et l'algorithme"](#), INRIA Rocquencourt, March 3 2011. ([Video](#)).
29. [Indo-French workshop on Matrix Information Geometry \(MIG\)](#), Thales & Ecole Polytechnique, Palaiseau, February 23-25, 2011. ([Abstracts book](#)).
30. [Trends in Mathematical Imaging and Surface Processing, Mathematisches Forschungsinstitut Oberwolfach](#), Germany January 30th - February 5th, 2011. ([Abstract book](#)).
31. [10th Symposium of Mathematical Aspects of Image Processing and Computer Vision \(MAIPCV 2010\)](#), Sapporo, Hokkaido Univ. November 25-27, 2010.
32. [Workshop on Biomedical Image registration \(WBIR'2010\)](#), Lübeck, July 12-13 2010.
33. [Traumatic Brain Injury Diffusion Tensor Imaging Roadmap Workshop](#), Chicago, June 7-8, 2010.
34. [Leon Brillouin trans-disciplinary seminar](#), GdR Science de Géométrie de l'Information, Paris, Mai 28, 2010. ([Video](#)).
35. [Trimestrial colloquium of the Jean Kuntzmann Laboratory, Grenoble](#), June 11 2009.
36. [Emerging Trends in Visual Computing \(ETVC'08\)](#), Ecole Polytechnique, November 18th-20th, 2008. <http://www.lix.polytechnique.fr/Labo/Frank.Nielsen/ETVC08/>
37. [Journées MAS de la SMAI](#) (french applied and industrial mathematical society). Rennes, August 29, 2008 <http://mas2008.univ-rennes1.fr/>.
38. [Institute for Pure and Applied Mathematics \(IPAM\) Summer School Program on Mathematics in Brain Imaging](#). UCLA, July 14-25, 2008. <http://www.ipam.ucla.edu/programs/mbi2008/>
39. [Interdisciplinary Workshop on 3D Paleo-Anthropology, Anatomy, Computer Science & Engineering - Synergies for the Future](#), Toulouse, June 19-20 2008.
40. [Mathematical meeting "Statistical modeling of images"](#), Luminy, Mai 5-9, 2008.

41. “Mathematics and Life-Science”, Dieudonné lab.-INRIA meeting, Nice, November 16, 2007.
42. [Statistical Registration: Pair-wise and Group-wise Alignment and Atlas Formation](#). MICCAI’07 Workshop, Brisbane, Australia, November 2, 2007.
43. SAMSI Summer 2007 Program on the Geometry and Statistics of Shape Spaces, Raleigh, NC, USA, July 7-13, 2007.
44. 15th ERNSI (European Network on System Identification) Workshop. Linköping, Sweden. September 20-21, 2006.
45. Mathematics and Image Analysis (MIA’06), Paris, 18-21 September, 2006.
46. Shape Spaces. IMA, Minneapolis, April 3-7, 2006.
47. Conference-winter school on singularities and applications, CIRM, Luminy, February 7-11, 2005.
48. Workshop on Computational Topology (ECG’02), Sophia-Antipolis, October 21-25, 2002.
49. CARS 2002, “Validation of medical image processing in image-guided therapy session”, Paris, June 2002.
50. Journées “Mathématiques et sciences du vivant”, Nice-Sophia Antipolis University, March 2002.
51. First Astronomical and Medical Imaging Meeting (AMI’01), Royal Statistical Society, London, UK, April 2001.
52. Journées Statistiques, INRIA Rennes IRISA, 15-16 November 2001.
53. Image Analysis and High Level Vision, IMA workshop, Minneapolis, MN, USA, December 13-17, 2000.

Invited seminars in universities

1. [MIT CSAIL](#), Cambridge, MA, September 8 2017.
2. Imaging Genetics Center at USC, Marina del Rey, Los Angeles, CA, USA, 19 July 2017.
3. [Colloquium of the Dieudonné \(JAD\) Lab](#), Nice University, October 10, 2016.
4. Center for Health Sciences, SRI international, Menlo Park, USA, June 4 2015.
5. [Statistics Department Seminar, Stanford University, April 21, 2015](#).
6. Séminaire de théorie du contrôle, Univ. Toulon, Decembre 11, 2014.
7. [Laboratoire de Mécanique](#), Lille, March 20 2014.
8. Hamiltonian Dynamics Seminar, Chair of Geometric Analysis Section de Mathématiques, EPFL, Lausanne, October 9, 2013.
9. Thematic day on initial stress for geomechanical models at IFP Energies nouvelles (IFPEN), Rueil-Malmaison, Sept. 19, 2013.
10. PENN Image Computing and Science Lab (PICSL), Philadelphia, May 23, 2012.
11. Minisymposium on 4D Medical Imaging, SIAM Imaging Science Conf., Philadelphia, May 20-22, 2012.
12. 23rd GRETSI Symposium on Signal and Image Processing, Bordeaux, September 5-8 2011. Special session on Information Geometry Sciences.
13. UCL Center for Medical Imaging (CMIC), London, January 26, 2011.
14. Department of Computing, Imperial College, London, January 25, 2011.
15. Colloquium “Le modèle et l’algorithme”, INRIA Rocquencourt, March 3 2011.
16. International seminar of the Computational anatomy project, Tokyo, November 24, 2010.
17. Leon Brillouin transdisciplinary seminar, GdR Science de Géométrie de l’Information, Paris, Mai 28, 2010.

18. Trimestrial colloquium of the Jean Kuntzmann Laboratory, Grenoble, June 11 2009.
19. Systems and Modeling Seminar Series, Montefiore Institute, University of Liège, Belgium, April 3, 2009.
20. Join GdR Isis / GdR Stic-Sante meeting day on diffusion imaging, ENST, Paris, December 9, 2008.
21. CSAIL, MIT (Biomedical Imaging and Analysis seminar series), September 12, 2008.
22. Probability and Statistics Lab (LSP), Toulouse, February 19, 2008.
23. Institut de Mathématiques et de Modélisation de Montpellier, Mai 21, 2007.
24. GIPSA-lab (ex LIS), Grenoble, France, April 26, 2007.
25. Johns Hopkins University, Baltimore, USA, April 2006.
26. University of Utah, Salt Lake City, USA, July 2005.
27. University of North-Carolina (UNC) at Chapel Hill, USA, July 2005.
28. University of Southern California (USC) Los-Angeles, USA, July 2004.
29. Technical University of Denmark (DTU), Copenhagen, March 2003.
30. University of Grenada, Spain, December 1999.
31. Université Claude Bernard Lyon 1, France, March 1998.
32. Artificial Intelligence Lab. Seminar Series, MIT, Cambridge, Mass, USA, March 1997.
33. Université Claude Bernard Lyon 1, France, April 1996.
34. Lab. Biologie Moléculaire des Relations Plantes-Micro-organismes (LBMRPM), Toulouse, April 1995.

Supervision of research activities

Former PhD Students

1. **Roch-Philippe Mollero** (2014-2017): *Uncertainty quantification in personalized electromechanical models. Application to cardiomyopathies and obesity.* Co-supervision with M. Sermesant and N. Ayache.
2. **Loic Devillier** (2015-2017): *Consistency of statistics on infinite dimensional orbifolds - Applications to computational anatomy.* Co-supervision with Stéphanie Allasonnière.
3. **Marc-Michel Rohé** (2014-2017): *Reduced Representation of Segmentation and Tracking in Cardiac Images for Group-wise Longitudinal Analysis.* Co-supervision with M. Sermesant. Currently research engineer at Median technologies (Sophia-Antipolis, FR).
4. **Nina Miolane** (2013-2016): *Geometric Statistics in Computational Anatomy: Template Estimation and Subspace Learning in Manifolds, Lie groups and Stratified Spaces.* Co-supervision with S. Holmes (Stanford U.). First prize in the “Popular Vote Awards” at the MICCAI 2014 Educational Challenge for their video on “Statistics on Lie groups for Computational Anatomy”. Awardee of a **l’Oréal-UNESCO 2016 Fellowship for Women In Science**. **Second prize of the regional “My thesis in 180 seconds”** competition in Nice in April 2017. Currently Inria@SiliconValley **Post-Doctoral Fellow**.
5. Mehdi Hadj-Hamou (2012-2016): *Biophysical modeling of the anatomical evolution of the brain.* Co-supervision with N. Ayache.
6. Bishesh Khanal (2012-2016): *Modeling the atrophy of the brain in Alzheimer’s disease.* Currently Post-doc at Imperial Colledge London, UK.
7. **Vikash Gupta** (2012-2015): *Diffusion tensor imaging of the brain: towards quantitative clinical tools.* Currently Post-doct at LONI, USC.
8. **Kristin McLeod** (2010-2013): *Modeling of Cardiac Growth and Deformation from Medical Images.* Co-supervision with M. Sermesant. One book chapter, two journal papers (plus one submitted), 2 conference and 4 workshop papers. **Best Paper Award, Cardiac Motion Estimation Challenge at STACOM 2011**, Toronto, CA. Currently Lead Engineer at **GE Healthcare**, Oslo, Norway

9. **Marco Lorenzi** (2009-2012): *Deformation-based morphometry of the brain for the development of surrogate markers in Alzheimer's disease*. Co supervision with G. Frisoni, IRCCS Fatebenefratelli, Brescia, Italy. 5 journal papers, 4 selective conference plus 4 workshop papers and 5 clinical conference presentations. **honorary mention at the 2015 Cor Baayen Award in 2015, Runner-up for the Erbsmann Award at IPMI 2011, and best oral presentation award at the STIA workshop associated to MICCAI 2010, Beijing**. Currently post-doc at UCL.
10. **Christof Seiler** (2009-2012): *Trees on Geometrical Deformations to Model the Statistical Variability of Organs in Medical Images*. Joint PhD (cotutelle) of U. of Bern and U. of Nice Sophia Antipolis. September 2012. Co-supervision (40%) with M. Reyes from U. Bern. Multi-scale and hierarchical description and estimation of locally affine deformations between anatomical shapes. 3 journal papers and 2 selective conference papers. **Young Scientist Award at MICCAI 2011**. Currently post-doct in Prof S. Holmes' lab, Statistics dept., Stanford U., USA.
11. **Heike Hufnagel** (2005 -2010, with interruptions): *Statistical shape analysis of normal and pathological organs within the abdomen*. U. of Hamburg / Lubeck. July 2010. Co-supervision with Pr.-Dr. H. Handels (50%). Statistical models of the shape from point sets with application to medical image segmentation. 2 journal paper, 1 selective conference and 6 workshop papers. **Third prize for the best scientific work at Bildverarbeitung fuer die Medizin 2007**. Currently working as technical officer at the World Health Organization (WHO) in Geneva.
12. **Thomas Mansi** (2007-2010): *Image-Based Physiological and Statistical Models of the Heart, Application to Tetralogy of Fallot*. Ecole des Mines de Paris, September 2010. Co-supervision (40%) with N. Ayache and M. Sermesant. Patient specific biomechanical modeling of the heart, statistical modeling of the heart growth in Tetralogy of Fallot patients, quantification of cardiac deformation in image sequences through incompressible non-linear registration (ilog-demons). 3 journal and 3 selective conference papers. **MICCAI 2011 Young Investigated Award**. Currently research scientist at Siemens Corporate Research, Princeton, USA).
13. **Stanley Durrleman** (2006-2010): *Statistical models of currents for measuring the variability of anatomical curves, surfaces and their evolution*. Nice-Sophia Antipolis University. March 2010. In collaboration with A. Trounev, CMLA, ENS. Co-supervision (60%) with N. Ayache. Statistical theory and numerical algorithms for currents (from the geometric integration theory) and their diffeomorphic registration with applications ranging from the brain shape to the remodeling of the heart. 5 journal (including one in J. of Human Evolution) and 4 selective conference papers. **MICCAI 2008 Young Investigator Award** and **2nd Gilles Kahn PhD prize 2010** awarded by the Soc. Informatique de France and the French Academy of Science. Currently a researcher in the joint INRIA-ICM team ARAMIS (Institut Cerveau Moelle, Pitié Salpêtrière Hospital).
14. **Pierre Fillard** (2004-2008): *Riemannian processing of tensors for diffusion MRI and computational anatomy of the brain*. University of Nice-Sophia Antipolis, February 2008. **Special mention for best PhD in Biomedical Engineering from the SFGBM-IEEE France Section, Lille, march 2009**. Co-supervision with N. Ayache.
15. **Jonathan Boisvert**: *Models of the geometric variability of the scoliotic spine*. University of Nice-Sophia-Antipolis and Polytechnique School of Montreal, Canada. March 2008. **France-Quebec co-supervised PhD prize 2009**. Co-supervision with N. Ayache and Farida Cheriet.
16. **Tom Vercauteren**: *Image registration and mosaicing for dynamic in vivo fibered confocal microscopy*. École des Mines de Paris, January 2008. Cifre with Mauna-Kea-Technologies. Co-supervision with N. Ayache. **Medical Image Analysis (MedIA) 2016 best paper award and MICCAI 2013 "Young Scientist Publication Impact Award"**. Currently Senior Lecturer at University College London.
17. **Tristan Glatard**: *Description, deployment and optimization of medical image analysis workflows on production grids*. University of Nice-Sophia Antipolis, November 2007. Co-supervision with J. Montagnat (Rainbow team, I3S, UNSA).
18. **Vincent Arsigny**: *Processing Data in Lie Groups: an Algebraic Approach. Application to Non-Linear Registration and Diffusion Tensor MRI* École Polytechnique. December 2006. **Runner up for the PhD prize Gilles Kahn 2007 awarded by the French Academy of Science and the SPECIF association (<http://specif.org/prix-these/>)**. Co-supervision with N. Ayache.

19. **Radu-Constantin Stefanescu**: *Parallel nonlinear registration of medical images with a priori information on anatomy and pathology*. University of Nice-Sophia-Antipolis, March 2005. Co-supervision with N. Ayache.
20. **Stéphane Nicolau**: *An augmented reality system for hepatic surgery*. University of Nice-Sophia-Antipolis, November 2004. Co-supervision with L. Soler (IRCAD,Strasbourg) and N. Ayache.
21. **Guillaume Flandin**: *Using geometric information for the statistical analysis of fMRI data*. University of Nice-Sophia-Antipolis, March 2004. Co-supervision with J.-B. Poline (CEA-SHFJ, Orsay) and N. Ayache.
22. **Sébastien Granger**: *Registration and reconstruction of surfaces: a multi-scale statistical approach. Application to computer-assisted dental implantology*. École des Mines de Paris, April 2003, with highest honors. Co-supervision with N. Ayache.
23. **Pascal Cachier**: *Non-rigid registration of tri-dimensional medical images. Contributions to iconic and geometric approaches*. Ecole Centrale Paris, January 2002, with highest honors. Co-supervision with N. Ayache.

Current PhD Students

1. **Shuman Jia** (2016-2019): *Population-based Model of Atrial Fibrillation: from Shape Statistics to Group-wise Physiology*. Co-supervision with Maxime Sermesant. **Best Challenge Paper Award at the 2016 STACOM Workshop**.

Visiting Scientists

- 2012, sep-nov **Marc Niethammer** (Assoc. Prof. at the Biomedical Research Imaging Center (BRIC), Univ. North Carolina Chapel Hill). Hosted by the Inria-Microsoft common research lab. *Control methods in diffeomorphic non linear registration for longitudinal image analysis*.
- 2011, oct **Stephen Marsland** (Ass. Prof. at Univ. Massey, NZ). *Machine learning and geometrical mechanics*.

Visiting PhD Students

- 2010-2011 Stefan Sommer (PhD student at the Image Group, Dept. of Computer Science, Univ. Copenhagen, with François Lauze and Mads Nielsen). 6 months. *Shape manifolds, statistics, and computations on Riemannian manifolds*.
- 2009 Maxime Boucher (PhD student at McGill Univ, Montreal, Canada, with A. Evans and K. Siddiqi). 5 months. *Multivariate statistical analysis on the cortex surface*.
- 2009 Vladlena Gorbunova (PhD student at Univ. Copenhagen (DIKU), with Marleen de Bruijne). 6 months. *Monitoring of chronic obstructive pulmonary disease progression from longitudinal lung CT scans using current-based image registration approaches*.
- 2007-2008 Alexander Schmidt - Richberg (University of Hamburg, PhD with Pr.-Dr. H. Handels), 6 month in 2007-2008. *Joint segmentation and registration of medical images*.
- 2007 Darko Zikic (Tech. Univ. Munich, PhD with N. Navab), 2 month in 2007. *Deformable registration of medical images*.

Engineers

1. Irina Vidal Migallon (Oct. 2012-2014): *Real-time multiple image registration for mosaicing*. Engineer recruited by Inria for the I-Lab SIWA with Mauna Kea Technologies.
2. Pascal Girard (8 month in 2011): fusion of the NeuroDMS and Shanoir software platforms in the framework of the Neurolog project (a distributed platform to support multi-centric studies in neurosciences). Currently software engineer at Cap-Gemini.
3. Andrew Sweet (9 month in 2009-2010): *Computational anatomy of the brain: from DTI population analysis to inter-subject registration constraints*. Work on [Diffusion Tensor Image registration with log-demons](#): 2 conference publications in 9 month and open-source software integrated into the [Tensor Toolkit](#). After 2 years at Massachusetts Institute of Technology (MIT, Cambridge, USA), Andrew Sweet became an image analyst and software engineer at inviCRO, Cambridge, Mass. USA.

Master students

1. Yann Thanwerdas: *Barycentric subspace analysis for dimension reduction in EEG signals for Brain Computer Interfaces* Ecole centrale Paris (5 month in 2017).
2. Sofia Farina: *Barycentric subspaces registration for multi-atlas brain segmentation*. Master of Science in mathematics, University of Bologna, IT (Erasmus) (3 month in 2017).
3. Bishesh Khanal: *Modeling and Simulation of Local Atrophy in Alzheimer's disease from 3D longitudinal MRI Images*. Master Computational Biology and Biomedicine, Nice Sophia Antipolis University, France (6 month in 2012).
4. Vikash Gupta: *Statistical atlases of diffusion tensor images*. Master Computational Biology and Biomedicine, Nice Sophia Antipolis University, France (6 month in 2011).
5. Andrew Sweet: *Computational anatomy of the brain: from DTI population analysis to inter-subject registration constrains*. Post master training period (6 month), 2009-2010.
6. Kristin McLeod. *Statistical shape analysis of the RV in rToF*. Post master training period (9 month in 2010).
7. Antoine Azar: *An Interactive Intensity- and Feature-Based Non-Rigid Registration Framework for 3D Medical Images*. Master IGMMV, University of Nice-Sophia Antipolis, 2005.
8. Pierre Fillard: *A Riemannian Framework for Tensor Imaging*. Master Optique-Image-Vision, Jean Monnet University, Saint-Etienne, 2004.
9. Heike Hufnagel: *Robust deformable registration of medical images using block matching*. Diploma Thesis, University of Luebeck, Germany, 2004.
10. Radu-Constantin Stefanescu: *Parallelization of registration algorithms*. DEA, Ecole Polytechnique, 2001.
11. Niels Raynaud: *A statistical approach for liver segmentation from tri-dimensional images*. DEA Mathématiques, Vision, Apprentissage, ENS Cachan, 2000.
12. Alejandro Ribes: *2D-3D registration for augmented reality*. DEA ARAVIS, University of Nice-Sophia-Antipolis, 1999.
13. Pascal Cachier: *Registration of tri-dimensional ultrasonic images*. DEA Math. and Artificial Intelligence, ENS Cachan, 1998.
14. Frédéric Nahon: *Image registration by maximization of mutual information*. Graduate degree, École Polytechnique, 1996.

Teaching

Courses

- Master 2 Computational Biology, University of Nice-Sophia Antipolis, *Computational Anatomy and Physiology module*, module responsible, 15h (2009-2017). Responsible for the Master (2015-2017).
- Master 2 MVA (first semester). *Medical imaging*. Sept. to December 2011 to 2017 (12h).
- Master 2 MVA / Ecole Centrale Paris (Applied math option, 3rd year). *Statistical computing on manifolds and data assimilation: from medical images to anatomical and physiological models*. January to March 2008 to 2018. (15h).
- DIU (Inter-University Diploma) Radiothérapie externe haute technicité, *Recalage d'images médicales et atlas anatomiques*, November 2012, 1h30, November 2013, 1h.
- Master 1 ENS (Ecole Normale Supérieure de Lyon / Université de Nice Sophia Antipolis). *Medical image processing*. March-April (24h module in 2008, 21h module in 2009 and 2011).
- Spring school on Medical image processing: from voxels to numerical atlases, *Computational anatomy and atlases*, Strasbourg, France, June 2-6, 2008 (3h).
- Biomedical Engineering inter-university PhD program from Zaragoza University and Polytechnique University of Catalonia (Spain). *Statistics on Riemannian Manifolds for Computational Anatomy*, September 2007 (20h).

- Master 2 MVA / Ecole Centrale Paris (3rd year). *Non-rigid registration and statistics on manifolds* February 2007 (9h).
- IT Univ. Copenhagen. *Non-linear shape modeling*. PhD Course, December 5-10, 2005. 30 h. module, with S. Joshi.
- Univ. Nice-Sophia Antipolis (UNSA). *Introduction to medical imaging*. DUT informatique, numerical images option, March 2003 (4h).
- ENSTA, 3rd year of engineer school course. *Introduction to medical image analysis*. January 1999 (3h).
- IMAC, 3e year of engineer school course. *Recognition and registration techniques*. 1998 (3h).

Tutorials

- *Minicourse on shape spaces and geometric statistics* with A. Trounev at TGSI, CIRM, Luminy, August 31 2017, 1h ([video](#)).
- *Geometric structures for statistics on shapes and deformations in computational anatomy*. [Infinite-dimensional Riemannian geometry with applications to image matching and shape analysis](#) program, Vienna, February 9-13, 2015, 4h.
- [Medical Imaging Summer School \(MISS\) 2014](#), Favignana (Sicily) July 28 - August 1, 2014, 3h.
- *The SVF Framework for Longitudinal Statistics on Deformations*. MICCAI 2014 workshop on Spatio-Temporal Image Analysis for Longitudinal and Time-Series Image Data, Cambridge, MA, USA, September 2014.
- *Diffusion analysis using a Riemannian Framework*. MICCAI 2008 tutorial on Advances in Diffusion MRI Analysis, tutorial, New-York, (NY, USA), September 2008.
- *Statistical Computing on Riemannian Manifolds: From Riemannian Geometry to Computational Anatomy*. MICCAI'05, Palm Spring, (CA, USA), October 2005.
- *Grids services for medical image analysis and registration*. MICCAI'04, Saint-Malo, September 2004.
- *Performance evaluation of registration algorithms in the absence of gold standard*. MICCAI'03, Montreal, November 2003.

Contracts and Grants

European projects

- **MD-Paedigree ICT-2011.5.2 (2013-2017)**: *Model-Driven European Paediatric Digital Repository*. (INRIA amount: 443 k€). Industrial partners: Siemens AG (DE), Siemens SCR (USA), Maat France (FR), MOTTEK (NL), EMP (DE), VUmc (NL), Lynkeus (IT). Universities: KU Leuven (BE), Fraunhofer (DE), UMC Utrecht (NL), TU Delft (NL), Sheffield (UK), Athens (GR), Genoa (IT), Transilvania din Brasov (RO); Hospitals: OPBG (Roma, IT), Gaslini (Genoa, IT), GOSH/UCL (London, UK), JHU (Baltimore, USA). Proposal writing in 2012. PI at INRIA.
- **HEALTH-e-CHILD IST-2004-027749 (2006-2009)**: *An Integrated health-care platform for European paediatrics. A Grid-enabled European network of leading clinical centers. Individualized disease prevention, screening, early diagnosis, therapy and follow-up of pediatric heart diseases, inflammatory diseases, and brain tumors*. (INRIA amount: 900 k€). Industrial partners: Siemens, Maat G-knowledge, CERN. Universities: West-England (Bristol, UK), Athens (GR), Genoa (IT); Hospitals: Gaslini (Genoa, IT), Necker (Paris, FR), GOSH/UCL (London, UK). Proposal writing and project inception from 2003 to 2005. Leader of WP11 (*integrated disease modeling*), member of the *Executive board* and of the *Project management team*, deputy of N. Ayache to the *Governing board*.

- **ROBOSCOPE HC 4018 (HC) (1998-2000):** *Ultrasound-image-guided manipulator-assisted system for minimally invasive endo-neuro-surgery*, (INRIA amount: 507 kECU). IBMT-Fraunhofer, ISM, Fokker Control, Imperial College. Scientific responsible of the project for INRIA; Leader of the *Multi Modal Image Fusion Tools* workpackage (including KU Leuven as sub-contractor); WP and INRIA deputy at the annual EC evaluation.

Industrial contracts

- **Therapixel (2013-):** Co-Founder.
- **Mauna-Kea Technologies (MKT) (2012-2015):** Inria Industrial lab (I-Lab) SIWA with MKT. *Real-time multiple image registration for mosaicing*.
- **Median (2006-2007 & 2017):** consultant.
- **Siemens Corporate Research (2004-2008) :** *Learning for error correction and validation of non-rigid registration algorithms*. Joint elaboration and follow-up of the contract (DEA of A. Azar, PhD of J.-M. Peyrat).
- **Medtronic (2004-2005) :** *Localization and segmentation of deep gray nuclei for electrode stimulation implantation in Alzheimer's disease*. Technical follow-up of the post-doctoral fellow (R. Stefanescu).
- **AREALL (1998-2002):** *A surgical navigation system for dental implantology*. Consultant from 1998 to 2002. Preparation and follow-up of the the research contract and Cifre fellowship for the PhD of S. Granger (2000-2002).
- **CNES (2002):** *Comparison of the performances of non-linear registration algorithms on aerial and satellite images*.
- **QuantifiCare (2001-):** *Medical image analysis for pharmaceutical applications*. Software and patents transfer. Founder and Scientific Council member.

Research grants

- **Associated team GeomStats (2015-2020):** *Geometric statistics and geometric subspace learning*. PI with Susan Holmes, Statistics Department, Stanford University.
- **France Stanford Collaborative Project (2013-2014):** *Understanding Lower Back Pain through Geometric Statistical Analysis of computed tomography(CT) Images*. PI with Susan Holmes, Statistics Department, Stanford University.
- **ANR blanc Karametria (2010-2013):** *a generic and extensible toolbox for feature-based morphometry in neuroimaging*. CEA-SHFJ, INSERM, Univ. Paris 5. Principal investigator at INRIA-Sophia.
- **INRIA ARC BrainVar (2007-2008):** *Analysis of the brain variability*. IRISA, ENS Cachan, La Pitié Salpêtrière, CEA-SHFJ (DRM). Writing of the proposal, coordinator of the action.
- **ANR TechLog NeuroLog ANR-06-TLOG-024 (2007-2009):** *Grid solutions for the processing of large databases of images in neurological disorders*. I3S, IRISA, INRIA, LRI, GIN UMR-S 836, IFR 49, Visioscopie, LaRIA, Business Object. Principal investigator at INRIA-Sophia.
- **ACI Masses de données AGIR (2004-2007):** *Grid Analysis of Radiological Images Data*. CRAN, LORIA, INRIA, LIMSI, LRI, LPC. French multi-disciplinary project aiming at leveraging medical imaging algorithms through grid systems. Proposal writing, principal investigator at INRIA-Sophia, joint advisor of the PhD of T. Glatard.
- **Associated team Brain Atlas with LONI at UCLA (2001-2008):** *Development of new methods to build atlases and to quantify the variability of the brain*. Joint writing of the proposal, general coordination of the collaboration with P. Thompson from 2001 to 2006, leader of the INRIA part from 2007.
- **Development Action IRMF (2000-2002):** *Non-linear registration of anatomical and functional MR images*. Robotvis, Vista (INRIA), INSERM (U494), CEA-SHFJ (DRM). Joint writing of the proposal, general coordinator of the action.

- **ARC MC2 (2000-2001):** *New methods to fuse MRI and MEEG*. Robotvis, Vista (INRIA), CNRS UPR 640, CEA-SHFJ.
- **Specific Action on Non-Rigid Registration (2003-2004):** CNRS, ENS, GET/TNT, LSIIT.

Software

- **LCC log-Demons:** Log-Demons Image registration with local correlation coefficient. Supervision of the software written by Marco Lorenzi. Open-source code available at [the Asclepios web-page](#).
- **DTI log-Demons:** Log-Demons Diffusion Tensor Image registration. Supervision of the software written by Andrew Sweet. Open-source code integrated into the [Tensor Toolkit](#).
- **ExoShape** Non-linear deformation and statistics on curves and surfaces using currents. Diffusion and maintenance of the software written by S. Durrleman & J. Glaunes.
- **MedINRIA Registration module** Linear and non-linear registration of medical images. Initiation and diffusion of the module realized by N. Toussaint through the EU project Healt-e-Child
- **Pasha:** (25 %) Non-rigid registration of 3D images (C++, 21 000 lines). Transferred to 4 universities and about to be distributed on the web.
- **Baladin:** (5 %) Multimodal registration of images using block-matching (C, 15 000 lines). Transferred to 2 universities and one industrial partner; exploitation licenses.
- **MIPS:** (5 %) Effort to gather and capitalize all the software developments of the Epidaure/Asclepios team on visualization and analysis of medical images. The library comprises the visualization tool Yav++ (C++, OpenGL and Tcl/Tk) and the other softwares of this section.
- **Yasmina:** (5%) Multimodal registration of medical images (C, 15000 lines). Transferred to 3 universities and 3 industrial partners; exploitation licenses; patent.
- **Roboscope MMIT package:** integration and distribution in the consortium of 115000 line of C, 122000 of C++ code and 5000 of Tcl code.
- **PFRegister, PFMatchICP, PFMatchIT, PFMatchGH:** (100 %) softwares for the registration and matching of geometric features (C, 27000 lines); registered at the APP in June 1997; Transferred to 3 universities and one industrial partner; Exploitation license.
- **Prospect:** (100 %) software for detecting common substructures in protein structures (C, 5000 lines); Registered at the APP in December 1997; Transferred to 3 universities.

Prizes and Awards

- **Fellow of the Medical Image Analysis and Computer Assisted Intervention (MICCAI) scientific society** for “pioneering theoretical contributions grounding the field of computational anatomy, shape statistics and medical image computing” (2017).
- French PEDR Outstanding research award (PEDR 2015-2018)
- French PES Outstanding research award (PES 2011-2014)

Best paper awards (including best papers by students)

- 2015 *Best paper award at the STACOM 2015 workshop* (J. L Bruse, K. McLeod, G. Biglino, H. N Ntsinjana, C. Capelli, T.-Y. Hsia, M. Sermesant, X. Pennec, A. M. Taylor, S. Schievano: A Non-parametric Statistical Shape Model for Assessment of the Surgically Repaired Aortic Arch in Coarctation of the Aorta: How Normal is Abnormal?) Statistical Atlases and Computational Models of the Heart STACOM 2015, Munich, Germany.
- 2013 *Young Scientist Publication Impact Award, MICCAI Society, Oct 2013*. (T. Vercauteren, X. Pennec, A. Perchant, N. Ayache. Symmetric log-domain diffeomorphic Registration: a demons-based approach. Published at MICCAI 2008).

- 2012 *MICCAI Young Scientist Publication Impact Award 2012* (C. Brun, N. Leporé, X. Pennec, Y.Y. Chou, A.D. Lee, M. Barysheva, G.I. de Zubicaray, M. Meredith, K. McMahon, M.J. Wright, A.W. Toga, and P.M. Thompson. A tensor-based morphometry study of genetic influences on brain structure using a new fluid registration method. MICCAI 2008).
- 2012 *Best paper award at the MICCAI workshop on Medical Computer Vision* (Groupwise Spectral Log-Demons Framework for Atlas Construction. H. Lombaert, L. Grady, X. Pennec, J.-M. Peyrat, N. Ayache, F. Chériet).
- 2011 *Young investigator award at MICCAI 2011* (C. Seiler, X. Pennec and M. Reyes: Geometry-Aware Multiscale Image Registration Via OBBTree-Based Polyaffine Log-Demons).
- 2011 *Honorable Mention (runner-up) for the Erbsmann Award at the IPMI 2011* (M. Lorenzi, N. Ayache, X. Pennec: Schilds Ladder for the parallel transport of deformations in time series of images).
- 2011 *Best paper award - motion challenge at the Statistical Atlases and Computational Models of the Heart MICCAI workshop 2011* (K. McLeod, A. Prakosa, T. Mansi, M. Sermesant, and X. Pennec, An Incompressible Log-Domain Demons Algorithm for Tracking Heart Tissue).
- 2010 *Best oral presentation at the STIA Workshop, Beijing, 2010* (M. Lorenzi, N. Ayache, G. Frisoni, and X. Pennec: 4D registration of serial brain MR's images: a robust measure of changes applied to Alzheimer's disease.)
- 2009 *IGI-Global Medical Information Science Discoveries-Research Book Chapter of 2009 Award.* for the book chapter *Grid Analysis of Radiological Data.*
- 2008 *Young investigator award at MICCAI 2008* (S. Durrleman, X. Pennec, A. Trouvé and N. Ayache: Sparse Approximation of Currents for Statistics on Curves and Surfaces).
- 2007 *Third prize in category best scientific work at Bildverarbeitung fuer die Medizin 2007* (H. Hufnagel, X. Pennec, J. Ehrhardt, H. Handels and N. Ayache: Point-Based Statistical Shape Models with Probabilistic Correspondences and Affine EM-ICP).
- 2006 *Medical Image Analysis (MedIA)-MICCAI best paper award 2006* (T. Vercauteren, A. Perchant, X. Pennec G. Malandain and N. Ayache: Mosaicing of Confocal Microscopic In Vivo Soft Tissue Video Sequences).
- 2006 *AMDO (IV Conference on Articulated Motion and Deformable Objects) best paper award 2006* (J. Boisvert, X. Pennec, H. Labelle, F. Chériet and N. Ayache: Principal Spine Shape Deformation Modes Using Riemannian Geometry and Articulated Models).
- 2003 *Young investigator award at MICCAI'03* (V. Arsigny, X. Pennec, and N. Ayache: Polyrigid transformations).
- 1997 *Giovanni DiChiro Award for Outstanding Scientific Research (Journal of Computer Assisted Tomography, 21(4):554-566, 1997).*

Distinguished Dissertations of PhD Students

- 2016 **Nina Miolane:** [L'Oréal-UNESCO 2016 Fellowship for Women In Science.](#)
- 2015 **Marco Lorenzi:** [Honorary mention at the 2015 Cor Baayen Award.](#)
- 2010 **S. Durrleman:** [second Gilles Kahn Prize](#) (Société Informatique de France and Academy of Sciences).
- 2009 **J. Boisvert:** best thesis award among PhDs co-supervised between France and Quebec.
- 2009 **P. Fillard:** special mention for best PhD in Biomedical Engineering from SFGBM-IEEE France.
- 2007 **V. Arsigny:** [second Gilles Kahn Prize](#) (Société Informatique de France and Academy of Sciences).

Other awards

- 1997 INRIA Post-doctoral Fellowship, 1997.
- 1996 PhD with outstanding praises (mention très honorable avec les félicitations du jury), École Polytechnique (Palaiseau), 1996.
- 1993 DRET/CNRS PhD Fellowship, 1993-1996.
- 1992 DEA fellowship from the Ecole Polytechnique, 1992-1993.
- 1987 Baccalauréat with highest praises (mention très bien), Limoges, 1987.

Patents

- [1] Natasha Lepore, Fernando Ypes-Calderon, Yalin Wang, Paul M. Thompson, Xavier Pennec, Marvin D. Nelson, Caroline Brun, and Wayne L. TANG. Magnetic resonance imaging tool to detect clinical difference in brain anatomy, February 2015.
- [2] Tom Vercauteren, Aymeric Perchant, Nicholas Ayache, Xavier Pennec, and Grégoire Malandain. Robust mosaicing method with correction of motion distortions and tissue deformations for in vivo fibered microscopy, August 2007.
- [3] Vincent Arsigny, Xavier Pennec, Pierre Fillard, and Nicholas Ayache. Device for processing raw images or tensor images, July 2006.
- [4] Vincent Arsigny, Xavier Pennec, Pierre Fillard, and Nicholas Ayache. Dispositif perfectionné de traitement ou de production d'images de tenseurs, April 2005. International application number PCT/FR2006/000774 published 12.10.2006.
- [5] Alexis Roche, Grégoire Malandain, Nicholas Ayache, and Xavier Pennec. Electronic device for automatic registration of images, March 2003.
- [6] Alexis Roche, Grégoire Malandain, Nicholas Ayache, and Xavier Pennec. Dispositif électronique de recalage automatique d'images, September 2000.

Publications

This bibliography is available on-line at [the Asclepios publication page](#) as well as on [the open archive hal system](#) with links on original versions and author-pdfs for most of the publications. These links can also be followed by clicking on the titles or on the doi in the text below. The bibliography can also be retrieved with citation ranks at [Google scholar](#); [ISI web of science / Researcher ID](#); [Scopus](#).

- 74 Journals, 6 proceedings, 148 peer-reviewed and archived conference articles, 12 book chapters or invited articles;
- 16,866 citations, h-index of 60 ([Google scholar](#), Feb. 2018); 36 papers over 100 citations.
- 6,151 citations for 136 publications and a h-index of 37 on [ResearcherID](#);
- 8,513 citations for 244 documents and a h-index of 45 in [Scopus](#);
- 89 [Pubmed entries](#)

Original contributions in international peer-reviewed journals

- [1] Marc-Michel Rohé, Maxime Sermesant, and Xavier Pennec. Low-Dimensional Representation of Cardiac Motion Using Barycentric Subspaces: a New Group-Wise Paradigm for Estimation, Analysis, and Reconstruction. *Medical Image Analysis*, 45:1–12, April 2018.
- [2] Xavier Pennec. Barycentric Subspace Analysis on Manifolds. *Annals of Statistics*, 2017.
- [3] Jan L. Bruse, Maria A. Zuluaga, Abbas Khushnood, Kristin Mcleod, Hopewell N. Ntsinjana, Tain-Yen Hsia, Maxime Sermesant, Xavier Pennec, Andrew M. Taylor, and Silvia Schievano. Detecting clinically meaningful shape clusters in medical image data: metrics analysis for hierarchical clustering applied to healthy and pathological aortic arches. *IEEE Transactions on Biomedical Engineering*, pages 1 – 13, February 2017.
- [4] Jan L. Bruse, Abbas Khushnood, Kristin Mcleod, Giovanni Biglino, Maxime Sermesant, Xavier Pennec, Andrew M. Taylor, Tain-Yen Hsia, and Silvia Schievano. How successful is successful? Aortic arch shape after successful aortic coarctation repair correlates with left ventricular function. *Journal of Thoracic and Cardiovascular Surgery*, 153(2):418 – 427, February 2017.
- [5] Loïc Devilliers, Stéphanie Allasonnière, Alain Trouvé, and Xavier Pennec. Inconsistency of template estimation by minimizing of the variance/pre-variance in the quotient space. *Entropy*, 19(6):28, June 2017.

- [6] Loïc Devilliers, Stéphanie Allasonnière, Alain Trouvé, and Xavier Pennec. Template estimation in computational anatomy: Fréchet means in top and quotient spaces are not consistent. *SIAM Journal on Imaging Sciences*, 10(3):1139–1169, August 2017.
- [7] Bishesh Khanal, Nicholas Ayache, and Xavier Pennec. Simulating Longitudinal Brain MRIs with known Volume Changes and Realistic Variations in Image Intensity. *Frontiers in Neuroscience*, 11(Article 132):18, February 2017.
- [8] Nina Miolane, Susan Holmes, and Xavier Pennec. Template Shape Estimation: Correcting an Asymptotic Bias. *SIAM Journal on Imaging Sciences*, 10(2):808 – 844, 2017.
- [9] Roch Molléro, Xavier Pennec, Hervé Delingette, Alan Garny, Nicholas Ayache, and Maxime Sermesant. Multifidelity-CMA: a multifidelity approach for efficient personalisation of 3D cardiac electromechanical models. *Biomechanics and Modeling in Mechanobiology*, pages 1–16, September 2017.
- [10] Naiara Rodriguez-Florez, Jan L. Bruse, Alessandro Borghi, Herman Vercrussey, Juling Ong, Greg James, Xavier Pennec, David J. Dunaway, Owase Jeelani, and Silvia Schievano. Statistical shape modelling to aid surgical planning: associations between surgical parameters and head shapes following spring-assisted cranioplasty. *International Journal of Computer Assisted Radiology and Surgery*, pages 1–11, May 2017.
- [11] Avan A Suinesiaputra, Pierre A Ablin, Xènia A Albà, Martino Alessandrini, Jack A Allen, Wenjia Bai, Serkan Çimen, Peter Claes, Brett R Cowan, Jan D’Hooge, Nicolas Duchateau, Jan Ehrhardt, Alejandro F. Frangi, Ali A Gooya, Vicente Grau, Karim Lekadir, Allen A Lu, Anirban A Mukhopadhyay, Ilkay Oksuz, Nripesh Parajuli, Xavier Pennec, Marco Pereañez, Catarina Pinto, Paolo Piras, Marc-Michel Rohé, Daniel R Rueckert, Dennis Säring, Maxime Sermesant, Kaleem Siddiqi, Mahdi Tabassian, Luciano Teresi, Sotirios A Tsaftaris, Matthias Wilms, Alistair A Young, Xingyu Zhang, and Pau Medrano-Gracia. Statistical shape modeling of the left ventricle: myocardial infarct classification challenge. *IEEE Journal of Biomedical and Health Informatics*, page 13, 2017. In press.
- [12] Jan L. Bruse, Kristin Mcleod, Giovanni Biglino, Hopewell N. Ntsinjana, Claudio Capelli, Tain-Yen Hsia, Maxime Sermesant, Xavier Pennec, Andrew M. Taylor, and Silvia Schievano. A statistical shape modelling framework to extract 3D shape biomarkers from medical imaging data: assessing arch morphology of repaired coarctation of the aorta. *BMC Medical Imaging*, 16(1), May 2016.
- [13] Mehdi Hadj-Hamou, Marco Lorenzi, Nicholas Ayache, and Xavier Pennec. Longitudinal Analysis of Image Time Series with Diffeomorphic Deformations: A Computational Framework Based on Stationary Velocity Fields. *Frontiers in Neuroscience*, 10(236):18, June 2016.
- [14] Bishesh Khanal, Marco Lorenzi, Nicholas Ayache, and Xavier Pennec. A biophysical model of brain deformation to simulate and analyze longitudinal MRIs of patients with Alzheimer’s disease. *NeuroImage*, 134:35–52, July 2016.
- [15] David M. Cash, Chris Frost, Leonardo O. Ithome, Devrim Ünay, Melek Kandemir, Jurgen Fripp, Olivier Salvado, Pierrick Bourgeat, Martin Reuter, Bruce Fischl, Marco Lorenzi, Giovanni B. Frisoni, Xavier Pennec, Ronald K. Pierson, Jeffrey L. Gunter, Matthew L. Senjem, Clifford R. Jack, Nicolas Guizard, Vladimir S. Fonov, D. Louis Collins, Marc Modat, M. Jorge Cardoso, Kelvin K. Leung, Hongzhi Wang, Sandhitsu R. Das, Paul A. Yushkevich, Ian B. Malone, Nick C. Fox, Jonathan M. Schott, and Sebastien Ourselin. Assessing atrophy measurement techniques in dementia: Results from the MIRIAD atrophy challenge. *NeuroImage*, 123:149–164, December 2015.
- [16] Marco Lorenzi, Nicholas Ayache, and Xavier Pennec. Regional flux analysis for discovering and quantifying anatomical changes: An application to the brain morphometry in Alzheimer’s disease. *NeuroImage*, 115:224–234, July 2015.
- [17] Marco Lorenzi, Xavier Pennec, Giovanni B. Frisoni, and Nicholas Ayache. Disentangling normal aging from Alzheimer’s disease in structural magnetic resonance images. *Neurobiology of Aging*, 36:S42–S52, January 2015.
- [18] Kristin Mcleod, Maxime Sermesant, Philipp Beerbaum, and Xavier Pennec. Spatio-Temporal Tensor Decomposition of a Polyaffine Motion Model for a Better Analysis of Pathological Left Ventricular Dynamics. *IEEE Transactions on Medical Imaging*, 34(7):1562–1675, July 2015.

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