Nicholas AYACHE

(updated January 2016)

Born in Paris 1st November 1958 French Nationality, married, 3 children
Work : INRIA, 2004 Route des Lucioles, 06902 Sophia-Antipolis, France
Tel : +33 (0)492 38 76 61 ; Nicholas.Ayache[at]Inria.fr
http ://www-sop.inria.fr/asclepios/personnel/Nicholas.Ayache/

Current Research Interests Computational Medical Image Analysis and Simulation to assist medical diagnosis and therapy ; Computational Anatomy and Physiology ; Personalized Digital Patient ; Virtual Anatomical and Physiological Human ; Design of innovative systems for Surgery Simulation and Image-Guided Therapy. Computational Models of Living Systems including geometrical, statistical, physical and functional components personalized from images.

Education

- **1980 :** ***Ingénieur Civil des Mines*** (Engineer Degree),
- **1981 :** **Master of Science**, Artificial Intelligence, University of California, Los Angeles
- **1983 :** ***Docteur Ingénieur*** **(PhD)**, Object Recognition & Robotics, Univ.Paris XI (Orsay), with honors.
- **1988 :** ***Docteur d'Etat*** **(Habilitation)**, Artificial Vision & Robotics, Univ. Paris XI (Orsay), with honors.

Professional Academic Experience

- 2006–present : **Research Director** of Class Exceptional (DR0) at **INRIA** (Asclepios Team).
- 2012–2015 : **Chief Scientific Officer** of **University Hospital Institute of Strasbourg (IHU)**.
- 1985–2010 : **Associate Professor** at **Ecole Centrale Paris**.
- 2005–2007 : **VP for Science** of INRIA Sophia-Antipolis Center (500 employees, 30 research groups).
- 2001–2005 : Deputy VP for Science of INRIA Sophia-Antipolis Unit, member of Steering Committee.
- Aug-Dec 2007 : Invited Scientist at **MIT**, **Harvard** and **Brigham & Women's Hospital** (Boston).
- 1989–2005 : Research Director and Group Leader at INRIA (project EPIDAURE).
- 1981–1989 : Senior Researcher at INRIA (project ROBOTVIS)

Publications, Patents, Softwares

- **12 books :** including a monograph (341 pages) published by MIT Press (English) and Masson (French).
- over **400 international publications** including *140 Journals* • *251 peer-reviewed and archived international conference articles* • *31 book chapters* or invited articles • *12 patents*.
- over **30,000 citations** ; **h-index : 89** ; Google Scholar
- Author of several softwares in shape recognition, computational stereovision, image and medical image analysis.
- Several popular software modules or libraries developed by our research team, including for instance MedINRIA, CardioViz, SepINRIA, Demons Registration, etc., many of them are publicly available.

Editorship (selection)

- 1995–present : **Founding Co-Editor in Chief** of ***Medical Image Analysis*** journal *(Elsevier Science)*.
- 1992–present : **Associate Editor** of ***Trans. on Medical Imaging*** *(IEEE)*.
- 2000–present : **Editorial Board** of **Computer Assisted Surgery** (Wiley)
- Editorial Board of *SIAM Journal on Imaging Sciences*, *Springer* (2010–2014).
- Editorial Board of *Math. Modeling and Num. Analysis,EDP Sc. and SMAI* (2006-2008).
- Editorial board of *International Journal on Computer Vision*, *Kluwer* (1992–2004),
- Editorial board of *Transactions on Robotics & Automation*, *IEEE* (1988–1993)
- Editorial board of *Computer Vision, and Image Understanding*, *Academic Press* (1994-97) ;
- Advisory Editor of *Medical Imaging Technology* (1995-) and *Videre*, *MIT Press* (1996-2000)

Supervision of PhD Students

- Supervisor or Co-Supervisor of **66** PhD Students who graduated between 1992 and March 2015, of **10** PhD Students currently preparing their PhD, of **5** past Habilitations.

Major Contributions (selection)

- **1981-1988 :** Early contributions in **Artificial Vision**, with first methods allowing robots to recognize and grasp cluttered objects for automated assembly tasks and first methods allowing mobile robots to build and update 3-D visual maps of their environment from embarked stereovision. These methods are based on original approaches combining graph theory and optimal non linear filtering.
- **Since 1988 :** Pioneering research in **Medical Image Computing, Image-guided surgery, and Surgery Simulation**. First registration methods for the temporal follow up of patients and for the fusion of multimodal images. First simulation of mini-invasive surgery with real-time visual and haptic feedback. Introduction of augmented reality methods in the operating room for surgery and interventional radiology. Pionnering methods for tracking moving organs with spatio-temporal models. First methods for the computation of statistics on anatomical manifolds with appropriate metrics. Efficient non linear registration of images with diffeomorphic mappings.
- **Since 2004 :** Introduction of the **Virtual Physiological Patient**, a combination of geometrical, statistical and biophysical models personalized through the analysis of medical images and signals. Pioneering introduction of such models for diagnosis and therapy planning in several domains including cardiology, neuroimaging, oncology, image-guided surgery.

Prizes and Distinctions (selection)

- Nov 2014 : Elected member of the **French Academy of Sciences** .
- 2014 : Laureate of the **Grand Prize Inria - Academy of Sciences** (25k Euros) .
- 2013 : Elected Professor at **College de France** on the Chair Informatics and Computational Sciences (2013-2014).
- 2013 : **Miccai Enduring Impact Award** for impact of contributions in Med. Imag. Comp. & Comp. Ass. Interv. (Nagoya, Japan).
- 2011 : **ERC Grant** of 2.5 Million Euros from European Research Council (MedYMA 2012-2017).
- 2009 : Elected *Fellow of the MICCAI Society* (Med. Image Comping & Comp. Assist. Intervention), London.
- 2008 : **Microsoft Prize for Science in Europe**, 250k Euros, by Royal Society and French Academy of Sciences
- 2008 : *MICCAI 2008 : Significant Researcher Award*, awarded at the MICCAI conference in New-York.
- 2008 : Elected to College of **AIMBE** (American Inst. for Med. & Biol. Engineering), NAS, Washington DC.
- 2007 : Designated *Best Researcher of the year* (PACA Region) by *Nouvel Economiste* Newspaper
- 2006 : **EADS Prize of Information Sciences**, 25k Euros, awarded by a jury of the French Academy of Sciences
- 2005 : Appointed *Research Director of Class Exceptional* (DR0) by INRIA.
- 1999 : *Laval Virtual award* for the introduction of surgery simulators and virtual reality in medicine. (with G. Subsol, H. Delingette, G. Picinbono, S. Cotin).
- 1996 : *European Computer Vision award* for industrial transfer, Vienna (with J.P. Thirion, G. Malandain, J. Feldmar et J. Declerck).

Nominations to Scientific Councils (selection)

- 2015– : *Member of the Research Council* of **Fondation pour la Recherche Médicale (FRM)**, Paris
- 2012–2015 : *Chief Scientific Officer (CSO)* of **Institut Hospitalo-Universitaire (IHU)** of Strasbourg
- 2012– : *Board of Directors* of **Virtual Physiological Institute**, Leuven
- 2011– : *Advisory Board* of **Center for Medical Image Computing**, UCL, London
- 2010– : *Advisory Board* of **Medical Engineering Centre**, St. Thomas Hospital & KCL, London
- 2010–2011 : Member of the *Visiting Committee* of the Sino-French institute **LIAMA** in Beijing.
- 2009–2012 : Member of the *Advisory Committee* of the Japanese Initiative **(MEXT)** in Computational Anatomy.
- 2008– : Member of the *Scientific Council* of the French *Inst. of Technologies for Healthcare* of **INSERM**.
- 2006–2008 : Member of the *Sectorial Committee* for *Biology and Health* of **ANR** (French Agency for Research)
- 2006–2008 : Member of the *Steering Committee* of the French Research Program on Imaging of **INSERM**.
- 2004–2007 : Member of the *High Scientific Council* for **France-Israel** Cooperation.
- 2004–2010 : Member of the *Advisory Committee*, **Shun Hing Institute** of Advanced Engineering (Hong-Kong).
- 2003–2005 : Member of the *Strategic Council* of **Pop-Sud**.
- 1998–2000 : Member of *Scientific Council* of **Cognitique**, Ministry of Research.
- 1995–1998 : Member of *Scientific Council* of **GIS Cognition** Ministry of Research.
- 1997 : Member of *Scientific Council* of **TIMC** (Grenoble).
- 1992-1997 : Member of *High Council* for **Scientific and Technical Police**(15 members), Ministry of Interior.

Best Paper Awards (selection)
- 2015 : Best paper award received at **MICCAI'2015** (with M. Le et al.)
- 2015 : Publication Impact award received at **MICCAI'2015** (with B. Menze et al.)
- 2014 : Best paper award received at Workshop on Abdominal Imaging **MICCAI'2014** (with C. Audigier, et al.)
- 2013 : Best paper award received at **MICCAI'2013** (with T. Vercauteren et al.)
- 2012 : Best paper award at **MICCAI'2012** (with S. Marchesseau et al.)
- 2012 : Best paper award at **MCV'12 Miccai workshop** (with Herve Lombaert et al.)
- 2011 : Best paper award at **FIMH'2011** (with Herve Lombaert et al.)
- 2010 : Nomination for Best paper award at **MICCAI'2010** (with E. Geremia et al.)
- 2008 : Best paper award at *MICCAI'2010 Workshop* (with M. Lorenzi et al.)
- 2008 : Best paper award at **MICCAI'2008** (with S. Durrleman, X. Pennec, P. Thompson and A. Trouvé).
- 2008 : Best paper award at 8th **IEEE EMBS Summer School**, Berder (with Thomas Mansi et al.).
- 2008 : Nomination for Best paper award at **MICCAI'2008** (with Thomas Yeo et al.)
- 2007 : Nomination for Best paper award at **MICCAI'2007** (with Tom Vercauteren et al.)
- 2006 : Best **MICCAI/MedIA** article Prize (with T. Vercauteren, A. Perchant, G. Malandain, X. Pennec.)
- 2006 : Best paper award at **Art. Motion and Def. Objects Conf.** (with J. Boisvert, X. Pennec, and F. Cheriet).
- 2003 : Best paper award at **MICCAI'2003** (with V. Arsigny et X. Pennec).
- 2001 : Best paper award at **Robotics & Automation** (with H. Delingette et G. Picinbono).
- 1991 : Best paper award at **RFIA 1991** (with A. Guéziec).

Distinguished Dissertations of supervised PhD Students (selection)
- 2015 : M. Lorenzi received the honorary mention of the *Cor Baayen* Award.
- 2010 : S. Durrleman received the second *Gilles Kahn* Prize, awarded by Specif and French Academy of Sciences.
- 2009 : J. Boisvert received the best thesis award among PhDs co-supervised between *France and Quebec*.
- 2009 : P. Fillard received a special mention for best PhD in Biomedical Engineering from *SFGBM-IEEE* France.
- 2008 : O. Clatz received a special mention for best PhD in Biomedical Engineering from *SFGBM-IEEE* France.
- 2007 : V. Arsigny received the second *Gilles Kahn* Prize, awarded by Specif and French Academy of Sciences.
- 2007 : O. Clatz received a best thesis award from the newspaper *Le Monde*.
- 2004 : C. Forest received a best thesis award from the newspaper *Le Monde*.
- 2003 : M. Sermesant received the second *SPECIF* award and the third *Télécom Valley* award.

Teaching
- Professor at **College de France** ; Chair of Informatics and Computational Sciences, 2013-2014.
- Ecole Centrale Paris since 1985 ;(joint course with ENS Cachan)
- Univ. Nice Sophia-Antipolis (1996–2000) ; Paris XI (Orsay) (1988–2000) ; ENSTA (1990–97) ; Ponts et Chaussées (1990-97) ; Mines de Paris (1991-96) ; INSTN (1990-92).

Start-up Companies
- **co-founder of 5 start-up companies** :
  1. **Noesis** (general image processing, 1985),
  2. **Realviz** (special effects and image processing, 1998),
  3. **Mauna Kea Technologies** (Endomicroscopic imaging, 2000),
  4. **QuantifiCare** (medical image processing, 2001).
  5. **Therapixel** (medical image interaction, 2013).

Scientific Consulting for Industry (selection)
- 1985–2000 : Consultant for *Matra*, then *Matra-MS2I*, *Matra Cap Systèmes* and *Matra S&I*.
- 1995–2001 Consultant for *Aleph Medical*, then *Focus Medical* and *Focus Imaging*.
- 2001– : Consultant for *Mauna Kea Technologies*
- 2015– : Scientific Board Member of *PicoFemto*, New York.

Organization of Conferences (selection)

- **General Chair** of **MICCAI 2012** (Medical Image Computing and Computer Ass. Intervention), Nice, France.
- **Conference Chair** of **FIMH 2009** (Functional Imaging and Modeling of the Heart), Nice.
- **Program Chair** of **MICCAI 2007** (Medical Image Computing and Computer Ass. Intervention), Australia.
- *Co-Founder and Co-Organizer* of *Jacques Morgenstern Colloquium* since 2003 (with J.D. Boissonnat)
- *Area Chair* of MICCAI 2005, MICCAI 2003
- Co-founder and board member of the scientific *MICCAI Society* since 2004
- **Conference Chair** of **IS4TM**, 1st Int. Symp. on*Surgery Simul. and Soft-Tissue Modeling*, 2002 (with H. Delingette).
- **Conference Chair** of **CVRMed95**, First Int. Conference on Computer Vision, Virtual Reality and Robotics in Medicine, Nice, 1995.
- *Conference Chair* of *Biomedical Modeling and Simulation*, Caesare Center, Bonn, 2001 (with E. Keeve).
- *Area-Chair* of *Multimedia and Biomedical Applications* track of **ICPR'2002**, Canada (with L. Shapiro).
- member of program committees of major conferences in image processing, computer vision, and medical image analysis (ICCV, ECCV, CVPR,ICPR, RFIA, CVRMed, IPMI, VBC, MICCAI, ISBI etc.).

Plenary and Keynote Invited Lectures (Selection)

- **A Nice Tribute to Michel Lazdunski**, University Hospital of Nice, 2015
- **Les Savoirs de l'ENS**, Ecole Normale Superieure, Paris 2015
- Cybermed Conference, Juan-les-Pins, 2015
- Forum Chili-France, Paris 2015
- Ecole Nationale d'Ingenieurs de Tunis, Tunisie, 2015
- Journees francaises des doubles cursus, Paris 2015
- **International Conference on Image Processing**, Opening Keynote lecture, Paris 2014
- **Multidisciplinary Computational Anatomy Symposium**, Opening Keynote Lecture, Fukuoka, Japan, 2014.
- **Sanofi Annual Event**, Keynote lecture, Paris 2014
- **College de France**, Inaugural Lesson, *From Medical Images to Digital Patients*, Paris 2014
- **Functional Imaging and Modeling of the Heart**, Keynote lecture, London, June 2013.
- **Computational Medicine Institute**, Johns Hopkins University, Baltimore, May 2013.
- *Rank Prize Symposium*, Grassmere, UK, March 2013.
- *French-Japan Symposium on Future of Surgery*, Keynote, Strasbourg, Dec. 2012.
- *Biomedical Imaging Festival, Oxford University*, Annual Guest lecture, Oct. 2012.
- *Kyushu University*, Fukuoka, Japan, invited keynote lecture, March 2012.
- **Academy of Sciences**, Rabbat, Marocco, Feb 2012
- *Technion 100 year anniversary*, Maison de la Chimie, Paris Dec 2011
- **French Academy of Medecine**, Paris Nov 2011
- *Physiome International Course*, Oxford University, UK, July 2011
- *ICCU Conference*, Nice, FR, April 2011
- *Tata Institute*, Mumbai, India, Feb 2011
- **Royal Society**, London UK, Nov 2010, Plenary lecture, part of *Computational Frontiers of Scientific Discovery*
- *Oxford University* , Sep 2010, keynote speaker at the celebration of 65th birthday of Sir Professor Mike Brady
- *Ecole Centrale Paris* , Oct 2010, Plenary Lecture, Part of *Scientific Challenges in Health, Biology and IT*
- *Inria-Industry annual meeting*, Bordeaux, April 2010, introductory plenary lecture
- **Tokyo University and MEXT**, Japan, Feb 2010, plenary lecture.
- *Osaka University*, Japan, invited plenary lecture, Feb 2010.
- **Isaac Newton Institute**, Cambridge (UK), 2009, plenary lecture.
- **French Academy of Sciences**, Paris, France, 2009, plenary lecture, part of *Scientific Challenges of 21st century.*
- *Medical Imaging Conference*, 2009, Orlando, USA, keynote lecture.
- *Molecular Imaging Summer School*, Lipari (I), 2009, plenary lecture.
- **College de France**, 2008, plenary lecture.
- **Mayo Clinic**, Rochester, USA, 2007, plenary lecture.
- *Brigham and Women's Hospital*, Monthly Seminars of Radiology, Boston, USA, 2007, plenary lecture.
- **French Academy of Sciences, special session in Nice, 2006**, plenary lecture.
- *Triangle Computer Science Distinguished Lecturer Series*, Chapell Hill, 2006.
- *Haemodel Conference on Computational Physiological Fluids*, Bergamo Italy, 2006, keynote speaker.
- *Shun Hing Intitute* , Distinguished Speaker, Hong-Kong, 2005.

– **First Robotics Science Conference**, keynote speaker, MIT, Boston, 2005, keynote lecture.
– *Medical Image Understanding and Analysis Conference*, keynote speaker, Bristol, 2005.
– *Computer Vision and Medicine Symposium*, invited speaker, Beijing, China, 2005.
– *Computer-Aided Surgery, Medical Robotics, and Medical Imaging*, Keynote, Tel Aviv, Israel, 2005.
– *Visiting Committee of INRIA*, Paris, 2004, plenary lecture.
– *Maison Francaise of Oxford*, UK, 2004, plenary lecture.
– *Mathematics in Brain Imaging*, UCLA, Los-Angeles, 2004, plenary lecture.
– *Medical Imaging and Augmented Reality*, keynote speaker, Beijing, 2004.
– *Jacques Morgenstern Colloquium*, INRIA Sophia-Antipolis, 2004, plenary lecture.
– *Institut Pasteur*, Paris, 2003.
– *Image Guided Surgery Workshop*, keynote, Nuremberg, Germany, 2003.
– *Computer Aided Radiology and Surgery Conference*, London, 2003.
– *Computer Analysis of Image Patterns Conference*, keynote, Groningen, Netherlands, 2003.
– *Jikei University*, keynote, Tokyo, 2003.
– *Digital Image Computing and Texture Analysis*, keynote, Sydney, Australia, 2003.
– *Iliatech : Computer Science and Health*, Rocquencourt, 2003.
– *Int. Symp. on Biomedical Imaging, from Nano to Macro*, Washington DC, 2002.
– *The Virtual Human Body - State of the Art and Visions for Medicine*, keynote, Hambourg, 2002.
– *Computer Aided Radiology*, Palais des Congrès, Paris, 2002.
– *Imagerie Médicale et Santé*, Centre Cycéron, Caen, 2002.
– *Biomedical Modeling and Simulation*, keynote, Caesare Center, Bonn, 2001.
– *Model Driven Acquisition* (organized by Academy of Sciences, Grenoble, 2000).
– *Machine Vision and Applications*, keynote, (Tokyo, 2000).
– *Mathematics and Image Analysis*, keynote, (Paris, 2000).
– *Mathematical Methods in Biomedical Imaging*, keynote, (USA, 2000).
– *Applications du Magnétisme en Médecine*, keynote, (Lille, 2000).
– **Académie des Sciences** (Paris, 1999), plenary lecture.
– *Visit of Président de la République (French President)* (INRIA-Rocquencourt, 1999).
– *IEEE Image Analysis and Processing*, keynote, (Venise, 1999).
– *Scandinavian Conference on Image Analysis*, keynote, (Greenland, 1999).
– *Computer-Aided Surgery, Medical Robotics, and Medical Imaging*, keynote, (Jérusalem, 1999).
– *Medicine Meets High Technology* (Munich, 1998), plenary lecture.
– *International Conference on Pattern Recognition*, keynote, (Australia, 1998).
– *Asian Conference on Computer Science* (Népal, keynote, 1997).
– *British Machine Vision Conference* (Birmingham, 1995), keynote.

Other invited lectures (selection)
– Academy of Sciences*, invited talk for the Grand Prize Inria, 2014.*
– Forum des Laureats*, invited talk for the Grand Prize Inria, 2014.*
– Content-Based Medical Image Retrieval WS*, Miccai, Toronto, Canada, keynote lecture, Sept 2011.*
– JiaoTong University*, Shanghai, China, invited lecture, Nov 2010.*
– Nagoya University*, Japan, invited lecture, Feb 2010.*
– Gifu University*, Japan, invited lecture, Feb 2010.*
– Techical University of Munich (TUM)*, invited lecture, Oct 2010.*
– Cercle des industriels*, French Academy of Sciences, Paris, France, 2009.*
– ETSI/ERCIM *Virtual Physiological Heart, Sophia Antipolis, France, 2009.*
– NCRI Conference, invited talk*, Birmingham, UK, 2008.*
– VBM Conference, Keynote lecture*, Delft, The Netherlands, 2008.*
– ICT for Health, invited talk*, Paris, 2008.*
– Colloquium Philips Research, invited talk*, Aachen, Germany, 2008.*
– Martinos Center, Massachusetts General Hospital*, Boston, USA, 2007.*
– CSAIL at MIT*, Cambdridge, USA, 2007.*
– Electrical Engineering Department at Harvard*, Cambdridge, USA, 2007.*
– Microscopic Biological Image Processing Workshop*,Copenhagen 2006.*
– Siemens Princeton*, 2005*
– Ecole Polytechnique*, Palaiseau, France, 2004*

– Toshiba Medical Systems, *Tokyo, 2002.*
– Surgery Simulation,*Course on Modeling in Medicine, Siggraph'00, New-Orleans, USA, july 2000.*
– European Endoscopic Gynaecological Surgery, *Paris, 2000.*
– Rencontres France-Israel, *Marseille, 2000.*
– Workshop on Medical Robotics,*International Conference on Robotics and Automation, San-Francisco, 2000.*
– Workshop on 3-D Shape Modeling,*International Conference on Robotics and Automation, San-Francisco, 2000.*
– Surgery Simulation, *Course on Modeling in Medicine, Siggraph'99, Los-Angeles, USA, August 1999.*
– Medical Resarch Seminar, *Sheba Medical Center, Tel-Aviv, Israel, 1999.*
– Séminaire Service Hospitalier Frédéric Joliot, *CEA, Orsay, 1999.*
– Journées TIC-Relations internationales, *CERAM, Sophia-Antipolis, 1999.*
– La recherche en direct, *Inria-Sophia-Antipolis, 1999.*
– Nouvelles technologies, nouveaux usages, nouveaux métiers, *Fondation Sophia-Antipolis, 1999.*
– NIH workshop against Cancer, *Boston, Octobre 1998.*
– Tutorial on Soft Tissue Modeling, *Boston, Octobre 1998.*
– 1st European Workshop on Neuroinformatics of the Human Brain, *Stockholm, 1997*
– National Science Foundation, *Workshop on Neurosciences, Washington, 1995.*
– Anniversaire des 10 ans de Noesis, *1995.*
– Eppendorf Hospital, *Hamburg, 1995.*
– Institute of Systems Science, *Singapour, 1994.*
– Brigham and Women's Hospital, *Harvard, 1994.*
– IEEE 1st International Summer School on 3D Biomedical Imaging, *Ile de Berder, 1994*
– Ecole Polytechnique de Lausanne, *1993 et 1995.*
– International Symposium on Robotics Research, *Pittsburgh, 1993.*
– Digital Equipment Corporation, *Boston, 1990.*
– Beijing, Shangai et Nankin Universities, *1989.*
– Harvard Medical School, *1989*
– MIT, AI Lab, *1989.*

Supervision or Co-Supervision of PhD Theses (name, year of defense, position after defense)

1. *I. Cohen* (Dauphine 92), *Assistant Professor*, Univ. Southern California (USA).
2. *G. Malandain* (Centrale 92), Research Director, INRIA-Sophia.
3. *A. Guéziec* (Orsay 93), *Senior Scientist*, IBM, Yorktown-Heigts, USA.
4. *J.L. Jézouin* (Orsay 91). Matra.
5. *R. Vergnet*, Matra, France.
6. *J.P. Berroir* (Dauphine 93), Researcher at INRIA-Rocquencourt.
7. *S. Benayoun* (Dauphine 94), Engineer.
8. *C. Nastar* (Ponts 94), Founder and Director of Look-That-Up, Paris.
9. *H. Delingette* (Centrale 94), Research Director, INRIA-Sophia.
10. *A. Gourdon* (Orsay 95). Engineer Sophia-Antipolis.
11. *E. Bardinet* Research engineer CNRS, Pitié Salpêtrière..
12. *J. Feldmar* (Polytechnique 95). Co-Funder OMIA (Oxford) et Look-That-Up (Paris).
13. *G. Subsol* (Centrale 95), researcher CNRS, Montpellier.
14. *S. Fernandez*-Vidal (Nice 96), Chargée de Cours Univ. Nice.
15. *D. Canu* (Orsay 96), Matra.
16. *M. Fidrich* (Orsay 96)GE Budapest, Hungary.
17. *X. Pennec* (Polytechnique 96), Researcher at INRIA Sophia-Antipolis.
18. *M. Bro-Nielsen* (Denmark 97), VR-Technologies (USA), NetDoktor (Scand.), Radiometer (Venture Funds).
19. *S. Cotin* (Nice 97), *Senior Scientist*, CIMIT, Boston
20. *J. Declerck* (Centrale 97). *Senior Scientist*, OMIA, Oxford.
21. *L. Soler* (Orsay 98), Research Director, IRCAD (Strasbourg).

22. *A. Guimond* (Montreal 1999), (Dir. JP. Thirion). Research engineer OMIA (Oxford), Dosisoft (Paris).
23. *K. Krissian* (ENS Cachan 2000) Researcher at Surgical Planning Laboratory, BW Hospital, Boston.
24. *J. Montagnat* CNRS Researcher, Nice.
25. *G. Picinbono* (Nice, 2001), Engineer CSTB (Sophia).
26. *S. Prima* (Orsay, 2001), Researcher at IRISA, Rennes.
27. *A. Roche* (Centrale, 2001), Research Scientist, CEA, Orsay.
28. *P. Cachier* (Centrale 2002)Medical Imaging Engineer, Median company, Sophia-Antipolis.
29. *S. Ourselin* (Nice, 2002) Research Scientist at CSIRO, Sydney, Australia, and UCL (London).
30. *D. Rey* (Nice, 2002). Software Engineer at INRIA Sophia-Antipolis.
31. *J. Stoeckel* (Nice, 2002) Research Engineer at Siemens.
32. *C. Forest* (Nice, 2002)Research Engineer at IRCAD, Strasbourg.
33. *Maxime Sermesant* (Nice, 2002), Assistant Prof. (London) and Inria researcher, Sophia-Antipolis.
34. *G. Flandin* (Nice and CEA, 2003) Post-doctoral researcher, University College, Londres.
35. *S. Nicolau* (Nice, 2003) Research Engineer at IRCAD, Strasbourg.
36. *A. Pitiot* (Nice and UCLA, 2004) Mirada-Solutions, Oxford.
37. *V. Moreau* (2004) Assistant professor, Nice.
38. *R. Stephanescu* (2005) Engineer.
39. *G. Dugas-Phocion* (2005) Engineer.
40. *O. Clatz* (2005) Research Scientist, Harvard Medical School, Boston and INRIA Researcher, Sophia-Antipolis.
41. *V. Arsigny* (2006), Regional Research and Development Council for Haute-Normandie, France.
42. *O. Commowick* (2007, Director G. Malandain), Post-Doc, Children's hospital, Boston, USA.
43. *J. Boisvert* (2008), Post-Doctorate, Biomedical Imaging, Canada.
44. *M. J. Costa* (2008), Medical Imaging, Siemens Medical Solutions, Erlangen, Germany.
45. *P. Fillard* (2008), Neuroscience Imaging, Neurospin, Paris.
46. *T Vercauteren* (2008), Microsocopic Biomedical Imaging, Mauna Kea Technologies, Paris.
47. *J.C. Souplet* (2009), Research scientist, Orleans Hospital, France.
48. *E. Konukoglu* (2009), Research Scientist, Microsoft Research, Cambridge, UK.
49. *J-M. Peyrat* (2009), Research Engineer, Siemens Medical Solutions, Oxford, UK.
50. *S. Durrleman* 2010, Research Scientist, Science Imaging Institute, Univ. of Utah, USA.
51. *F. Billet* 2010, Research Engineer, University Hospital (CHU), Grenoble.
52. *T. Mansi* 2010, Research Scientist, Siemens Corporate Research, Princeton, USA.
53. *B. Andre* 2011, Research Engineer, Mauna Kea Technologies, Paris.
54. *J. Relan* (2012) Saint Jude Medical, Bordeaux.
55. *M. Lorenzi* (2012) University College London.
56. *A. Prakosa* (21 Jan 2013) Johns Hopkins University, USA.
57. *S. Marchesseau* (28 Jan 2013) Clinical Imaging Research Centre, NUS Singapore
58. *E. Geremia* (30 Jan 2013) Amadeus, Sophia Antipolis, France.
59. *E.Stretton* (2014) Philips Healthcare, The Netherlands.
60. *V. Gupta* (2015) Univ. of Southern California, USA.
61. *C. Audigier* (2015) Johns Hopkins University Hospital, USA.
62. *R. Cabrera Lozoya* (2015) IHU Bordeaux and Inria Sophia Antipolis.
63. *N. Cordier* (2015)
64. *L. Le Folgoc* (2015) Microsoft Research Cambridge, UK.
65. *Jan Margeta* (2015)
66. *P. Gori* (2016) ICM, IHU Pitie Salpetriere, Paris.

Supervision or Co-Supervision of current PhD theses (planned date of defense)

1. *T. Demarcy* (2016)
2. *S. Giffard-Voisin* (2016)
3. *M. Hadj-Hamou* (2016)
4. *B. Khanal* (2016)
5. *M. Lê* (2016)
6. *R.P. Mollero* (2017)
7. *A. Vemuri* (2016)
8. *P. Mlynarski* (2018)
9. *Q. Zheng* (2018)

Publications of Nicholas Ayache (updated April 2015)

An up-to-date list of over 400 peer-reviewed publications is available at the following URL : https ://www-sop.inria.fr/asclepios/biblio/Author/AYACHE-N.html

Books

1. *Des images medicales au patient numerique*, N. Ayache, Lecons inaugurales du College de France. Fayard, March 2015.
2. *Handbook of Biomedical Imaging : Methodologies and Clinical Research* N. Paragios, J. Duncan, and Nicholas Ayache, editors - Springer, 1st edition 2015. Note : ISBN : 978-0-387-09748-0, 590 pages.
3. *Medical Image Computing and Computer-Assisted Intervention* - MICCAI 2012 - Nicholas Ayache, Hervé Delingette, Polina Golland, and Kensaku Mori, editors. Part I, volume 7510 of LNCS, Nice, France, October 2012. Springer. Note : 746 pages.
4. *Medical Image Computing and Computer-Assisted Intervention* - MICCAI 2012 - Nicholas Ayache, Hervé Delingette, Polina Golland, and Kensaku Mori, editors. Part II, volume 7511 of LNCS, Nice, France, October 2012. Springer. Note : 674 pages.
5. *Medical Image Computing and Computer-Assisted Intervention* - MICCAI 2012 - Nicholas Ayache, Hervé Delingette, Polina Golland, and Kensaku Mori, editors. Part III, volume 7512 of LNCS, Nice, France, October 2012. Springer. Note : 646 pages.
6. *Functional Imaging and Modeling of the Heart* - FIMH 2009, Springer. N Ayache, H Delingette, and M Sermesant, editors, volume 5528 of LNCS, Nice, France, 537 pages, June 2009.
7. *Medical Image Computing and Computer-Assisted Intervention* - MICCAI 2007 - N. Ayache, S. Ourselin, and A. Maeder, editors. Part I, volume 4791 of LNCS, Brisbane, Australia, October 2007, 1001 pages. Springer.
8. *Medical Image Computing and Computer-Assisted Intervention* - MICCAI 2007 - N. Ayache, S. Ourselin, and A. Maeder, editors. Part II, volume 4792 of LNCS, Brisbane, Australia, October 2007, 977 pages. Springer.
9. *Computational Models of the Human Body*, N.Ayache, Volume Editor, Handbook of Numerical Analysis, (P. Ciarlet Series Editors), 670 pages, Elsevier, 2004.
10. *Surgery Simulation and Soft Tissue Modeling*, N. Ayache and H. Delingette, Editors, Lecture Notes in Computer Science (volume LNCS 2673), Springer-Verlag, 386 pages, 2003
11. *Computer Vision, Virtual Reality and Robotics in Medicine (CVRMed'95)*, N. Ayache, Editor, Lecture Notes in Computer Science, Springer-Verlag, No 905, 567 pages, 1995. (N. Ayache).
12. *Artificial Vision for Mobile robots — Stereo-vision and Multisensor Perception*, 342 pages, MIT-Press, 1991. (N. Ayache).
13. *Vision Stéréoscopique et Perception Multisensorielle : Application à la robotique mobile*, Inter–Editions-Masson, *Collection Science Informatique*, directed by G. Huet, 341 pages, Mai 1989.(In French). (N. Ayache).

Book Chapters and Invited Articles (selection)

1. Building Patient-Specific Physical and Physiological Computational Models from Medical Images. In Nikos Paragios, Jim Duncan, and Nicholas Ayache, editors, Handbook of Biomedical Imaging : Methodologies and Clinical Research, pages 169-182. Springer US, 2015. Hervé Delingette and Nicholas Ayache.
2. Image Based Modelling. In Peter Coveney, Vanessa Diaz, Peter Hunter, and Marco Viceconti, editors, Computational Biomedicine, pages 59 - 82. Oxford University Press, 2014. A. Frangi, D. Friboulet, N. Ayache, H. Delingette, T. Glatard, C. Hoogendoorn, L. Humbert, K. Lekadir, I. Larrabide, Y. Martelli, F. Peyrin, X. Planes, Maxime Sermesant, M.C. Villa-Uriol, T. Whitmarsh, and D. Atkinson.
3. Optimal control in image processing, chapter Image-based modeling of tumor growth in patients with glioma. Springer, 2011. Bjoern Menze, Erin Stretton, Ender Konukoglu, and Nicholas Ayache.
4. Personalization of Reaction-Diffusion Tumor Growth Models in MR Images : Application to Brain Gliomas Characterization and Radiotherapy Planning. In Thomas S. Deisboeck and Georgios Stamatakos, editors, Multiscale Cancer Modeling. CRC Press, 2010. Ender Konukoglu, Olivier Clatz, H. Delingette, and Nicholas Ayache

5. Asclepios : a Research Project-Team at INRIA for the Analysis and Simulation of Biomedical Images. In From semantics to computer science : essays in honor of Gilles Kahn. Cambridge University Press, 2009. (N. Ayache, O. Clatz, H. Delingette, G. Malandain, X. Pennec, and M. Sermesant.)
6. Virtual Pulmonary Valve Replacement Interventions with a Personalised Cardiac Electromechanical Model. In Recent Advances in the 3D Physiological Human. Springer, 2009. Note : In press. T Mansi, B André, M Lynch, M Sermesant, H Delingette, Y Boudjemline, and N Ayache.
7. Tumor Growth Modeling in Oncological Image Analysis. In I. Bankman, editor, Handbook of Medical Image Processing and Analysis - New edition, chapter 18, pages 297-307. Academic Press, December 2008. Note : ISBN-13 : 978-0-12-373904-9. E Konukoglu, X Pennec, O Clatz, and N Ayache.
8. Landmark-based registration using features identified through differential geometry. In I. Bankman, editor, Handbook of Medical Image Processing and Analysis - New edition, chapter 34, pages 565-578. Academic Press, December 2008. Note : ISBN-13 : 978-0-12-373904-9. X Pennec, N Ayache, and J P Thirion.
9. Processing of In Vivo Fibered Confocal Microscopy Video Sequences. In Jens Rittscher, Raghu Machiraju, and Stephen T. C. Wong, editors, Microscopic Image Analysis for Life Science Applications, chapter 19, pages 441-463. Artech House, 2008. T Vercauteren, N Ayache, N Savoire, G Malandain, and A Perchant.
10. Non-Rigid MR/US Registration for Tracking Brain Deformations. In R.S. Blum and Zh. Liu, editors, Multi-Sensor Image Fusion and Its Applications, volume 26 of Signal Processing and Communications, chapter 4, pages 107-143. CRC Press - Taylor and Francis, July 2005. Xavier Pennec, Alexis Roche, Pascal Cathier, and Nicholas Ayache.
11. *Non-Rigid MR/US Registration for Tracking Brain Deformations.* In R.S. Blum and Zh. Liu, editors, Multi-Sensor Image Fusion and Its Applications. Marcel Dekker Inc., 2005. (In Press). X. Pennec, A. Roche, P. Cathier, and N. Ayache.
12. *Soft Tissue Modeling for Surgery Simulation.* In Computational Models for the Human Body, Handbook of Numerical Analysis (Series Editor : Ph. Ciarlet), pages 453-550. Elsevier, 2004. H. Delingette and N. Ayache.
13. Non-Rigid MR/US Registration for Tracking Brain Deformations. In R.S. Blum and Zh. Liu, editors, Multi-Sensor Image Fusion and Its Applications, volume 26 of Signal Processing and Communications, chapter 4, pages 107-143. CRC Press - Taylor and Francis, July 2005. Xavier Pennec, Alexis Roche, Pascal Cathier, and Nicholas Ayache.
14. Towards Virtual Physiological Human : Multilevel Modeling and Simulation of the Human Anatomy and Physiology. White Paper on Research Challenges and Intermediate Steps to be addressed by Interdisciplinary Research Programs, Edited by DG Information Society and Media, ICT for Health, Nov 2005. N. Ayache, A. Frangi, P. Hunter, R. Hose, I. Magnin, M. Viceconti et al.
15. Medical Imaging Informatics : from Digital Anatomy to Virtual Scapels and Image Guided Therapy. Introduction to the *2002 IMIA Yearbook of Medical Informatics*, 2002. N. Ayache.
16. Landmark-based registration using features identified through differential geometry, Chapter 31, In *Handbook of Medical Image Processing.* pages 499–513,Academic Press, 2000. X. Pennec, N. Ayache, and J.P. Thirion.
17. Imagerie et robotique médicales : du microscope informatique au simulateur de chirurgie, *Technique et Sciences Informatiques,* Volume 19, Numéro 1, Janvier 2000. N.Ayache. **Millenium Issue of TSI.**
18. L'analyse automatique des images médicales, état de l'art and perspectives. *Annales de l'Institut Pasteur*, Elsevier, 9 :1, pp,13–21, 1998 ; Also INRIA Resarch Report No.3364, 1998. Nicholas Ayache.
19. Frequency-based nonrigid motion analysis : Application to 4 dimensional medical images, in *Deformable models in medical image analysis*, edited by A. Singh, D. Goldgof and D. Terzopoulos, IEEE Computer Society, Chapter 27, Pages 372-384, 1998. C. Nastar and N. Ayache.
20. Medical Image Analysis and Simulation, *Lecture Notes in Computer Science*, Volume 1345, pp. 5-17, 1997. N. Ayache
21. Surgery Simulation with visual and haptic feedback, in *Robotics Research : 8th International Symposium*, Springer-Verlag, Editors Shirai, Hirose, 1997 N. Ayache and S. Cotin and H. Delingette.
22. Building, registrating and fusing noisy visual maps. Chapter 21 of the book *Multisensor integration and fusion for intelligent machines and systems*, edited by Ren C. Luo and Michael G. Kay, Ablex Publishing Corporation, 1995. N. Ayache and O. Faugeras.
23. Segmentation of Complex 3D medical Objects : a challenge and a requirement for computer assisted surgery planning and performing. In R. Taylor and S. Lavallee, editors, *Computer Integrated Surgery*, MIT-Press, 1995. N. Ayache, Ph. Cinquin and al.

24. Computer Vision applied to 3-D Medical Images : Results, Trends and Future Challenges, in Chapter 12 of *the 6th Int. Symposium on Robotics Research*, invited conference, The International Foundation for Robotics Research, Cambridge, USA and c/o LAAS, 7 Av. du Colonel Roche, 31077- Toulouse France, 1994. also INRIA Research Report, No. 2050, 53 pages. N. Ayache.
25. Deformable 3D objects : using modes and FFT for a quantitative analysis of nonrigid motion, in IEEE Workshop on Object Representation for Computer Vision, Editors : M. Hébert, J. Ponce, T. Boult and A. Gross. New-York, USA, 1994. C. Nastar and N. Ayache.
26. An $\mathcal{O}(n^2)$ Algorithm for 3D Substructure Matching of Proteins, in *Shape and Pattern Matching in Computational Biology*, Plenum Publishing, 1994, editors : A. Califano, I. Rigoutsos, I. and H.J. Wolson, H.J, X. Pennec, and N. Ayache.
27. A New Physically Based Model for Efficient Tracking and Analysis of Deformations, *Lecture notes in computer science : Geometric Reasoning - from Perception to Action*, Editor : C. Laugier. Springer-Verlag, 1993. C. Nastar and N. Ayache.
28. Medical Image Tracking, Chapter 17 of book *Active Vision* edited by A. Blake and A. Yuille, MIT-Press, 1992, N. Ayache, I. Cohen and I. Herlin.
29. Maintaining representations of the environment of a mobile robot. Chapter of the book *Intelligent Autonomous Mobile Robots*, Editors : S.S. Iyengar and A. Elfes, 1992. N. Ayache and O. Faugeras.
30. Lissage et recalage de courbes gauches bruitées, *Traitement du signal*, 9 :6, (1992). A. Guéziec and N. Ayache.
31. Analysis of a sequence of stereo scenes containing multiple moving objects using rigidity constraints. in *Computer Vision Principles*, IEEE Computer Society Press, 1991, Editors : R. Kasturi and R.C. Jain Z. Zhang and O.D. Faugeras and N. Ayache.
32. Steps towards the automatic interpretation of 3D images, in *3D imaging in medicine*, Springer Verlag, 1990, edited by K. Hohne, H. Fuchs and S. Pizer, NATO ASI Series, Vol. F60. N. Ayache, J.D. Boissonnat and L. Cohen and B. Geiger and J. Levy-Vehel and O. Monga and P. Sander.
33. Model guided recognition and positioning of 2D and 3D objects, *Industrial Applications of Image Analysis, D.E.B. Publishers*, The Netherlands, 1983, O. Faugeras, N. Ayache and M. Hébert.

Patents *for each patent, only the original reference is given here, even when an international extension was later granted.*

1. Procédé and dispositif d'aide à l'inspection d'un corps, notamment pour la tomographie, Brevet Français, numero 91 05138, Avril 1991. (JP. Thirion and N. Ayache).
2. Dispositif de traitement d'informations d'images tri-dimensionnelles avec extraction de lignes remarquables, Brevet Français, numero 92 03900, Mars 1992. Extension EUROPE le 01-12-99. (J.P. Thirion, N. Ayache, O. Monga, and A. Gourdon).
3. Correspondance Multi-couples (vision stereoscopique., Brevet Francais 9710284, Brevet Europeen 98402025.5, 1997. (D. Canu and N. Ayache and A. Sirat).
4. Dispositif électronique de traitement d'images pour la détection de mouvements. (J. Declerck, N. Ayache and J. Feldmar), 20-03-1997, US963621-USA.
5. Dispositif électronique de traitement de données-image, pour la simulation du comportement déformable d'un objet.19-11-1997, FR9714506, France. Extension to Europe and USA WOFR9802428, Nov. 1998. (S.Cotin, H. Delingette and N. Ayache)
6. Dispositif électronique de recalage automatique d' images. 28-07-98, FR9809649-France. (A. Roche, G. Malandain, N. Ayache and X. Pennec)
7. Dispositif de simulation de déformations de matériaux, notamment de tissus corporels mous. FR : 0101717 (G. Picinbono, H. Delingette, N. Ayache)
8. Dispositif et méthode de traitement d'image pour détection de lésions évolutives. approche 1 (Oct 2001). (D. Rey, J. Stoeckel, G. Malandain, N. Ayache).FR : 0113192
9. Dispositif et méthode de traitement d'image pour détection de lésions évolutives. approche 2 (Dec 2001). (D. Rey, J. Stoeckel, G. Malandain, N. Ayache).FR : 0115780
10. Procédé et système de mesure de vitesse du flux sanguin, Mauna Kea technologies, (mars 2005), FR 04 03519 (F. Lacombe, G. Le Gouahler, A. Perchant, N. Ayache).

11. A sophisticated device for the processing of raw images or DTI images, French Patent FR0503483, 2005. V. Arsigny, P. Fillard, X. Pennec, N. Ayache.2006
12. A method for Mosaicing of Microscopic Images, 2007. T. Vercauteren, A. Perchant, N. Ayache, X. Pennec, G. Malandain

Large Audience Articles (selection)

1. Le cerveau en quatre dimensions. *La Recherche*, (320) :46–49, May 1999. Version électronique : http ://www.larecherche.fr/arch/99/05. (N. Ayache and G. Subsol).
2. El Cerebro in Cuatro Dimensiones. *Mundo Cientifico*, (203) :30–33, July 1999.(en espagnol) (N. Ayache and G. Subsol)
3. La simulation de Chirurgie Hépatique. Pour la Science, (52) :106-109, July 2006. Hervé Delingette and Nicholas Ayache.

Refereed Journal Publications (selection)

1. HYPER : A new approach for the recognition and positioning of 2D objects, *IEEE Transactions on Pattern Analysis and Machine Intelligence*, Vol. 8, No 1, pp. 44–54, Jan. 1986 (N. Ayache and O. Faugeras).
2. Efficient registration of stereo images by matching graph descriptions of edge segments, *International Journal of Computer Vision*, 107–131, 1987 (N. Ayache and B. Faverjon).
3. Building, registrating and fusing noisy visual maps. in *International Journal of Robotics Research*, (Edited by Mike Brady), Vol 7, No. 6, pp 45–65, 1988 (N. Ayache and O. Faugeras).
4. Maintaining representations of the environment of a mobile robot. IEEE Journal of Robotics and Automation 5(6) :804-819, December, 1989. (N. Ayache and O. Faugeras),
5. Trinocular stereovision for Robotics. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, Vol 13, No 1, 1991 (N. Ayache and F. Lustman).
6. Using deformable surfaces to segment 3-D images and infer differential structures, *Computer Vision, Graphics and Image Processing*, Academic Press, volume 56 :2, pages 242-263, 1992. (I. Cohen and L. Cohen and N. Ayache).
7. Features extraction and analysis methods for sequences of ultrasound images, *Image and Vision Computing*, Volume 10 :10, pages 673-682, 1992, (I. Herlin and N. Ayache).
8. From voxel to intrinsic surface features *Image and Vision Computing*, volume 10 :6, pages 403–417, 1992. (O. Monga, N. Ayache and P. Sander).
9. Extraction de traits caractéristiques dans des séquences d'images échocardiographiques. *Technique et Science Informatique*, Volume 11 :04, pages 99–118, 1992, (I. Herlin et N. Ayache).
10. Topological segmentation of discrete surfaces, *International Journal of Computer Vision*, volume 10 :2, pages 183–197, 1993. (G. Malandain, N. Ayache and G. Bertrand).
11. Smoothing and Matching of 3−D-Space Curves, *International Journal of Computer Vision*, 12 :1, 79-104 (1994). (A. Guéziec and N. Ayache).
12. Medical Computer Vision, Virtual Reality and Robotics – Promising Research, *Image and Vision Computing*, Elsevier, Vol 13, No 4, pp. 295-313, May 1995. (N. Ayache).
13. Rigid, Affine and Locally Affine Registration of Free Form Surfaces, *Int. Journal of Computer Vision*, 18(2), pp.99–119, 1996. (J. Feldmar and N. Ayache).
14. Frequency-based nonrigid motion analysis : Application to 4 dimensional medical images, *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)* 18(11), pp.1067–1079, 1996. (C. Nastar and N. Ayache).
15. Tracking and Motion Analysis of the left ventricle with deformable superquadrics, *Medical Image Analysis*, Oxford University Press, 1996, Volume 1, Number 2, pp. 129–149, (E. Bardinet, L. Cohen and N. Ayache).
16. Construction automatique d'atlas anatomiques morphométriques à partir d'images médicales tridimensionnelles : applications à un atlas du crâne. *Traitement du Signal*, 13(6), pp651–673, 1996. (G. Subsol, JP. Thirion, and N. Ayache). Stereotact Funct Neurosurg.
17. X-ray angiography in stereotactic conditions : techniques and interest for interventional neuroradiology. *Stereotact Funct Neurosurg* . 1997 ;68(1-4 Pt 1) :117-20. Picard L, Maurincomme E, Soderman M, Feldmar J, Anxionnat R, Launay L, Ericson K, Malandain G, Bracard S, Kerrien E, Flodmark O, Ayache N.

18. Suivi de données médicales 3D avec un modèle paramétrique déformable. *Technique and science informatiques*, 16(3), pp.355-381, 1997. (E. Bardinet, L. Cohen and N. Ayache).
19. Simulation Active de Chirurgie Endoscopique *Revue Européenne BioMédicale (RBM)*, 19(5) :167–172, 1997. (S. Cotin, H. Delingette, JM Clément, J. Marescaux, N. Ayache).
20. 3D-2D projective Registration of Free Form curves and surfaces, *Computer Vision and Image Understanding*, Academic Press,65(3), pp.403–424, 1997. (J. Feldmar, N. Ayache and F. Betting).
21. Medical Image Registration using Geometric Hashing. *IEEE Computational Science and Engineering,* special issue on Geometric Hashing.4(4), pp.29–41, October, 1997. (A. Gueziec et X. Pennec et N. Ayache).
22. Extension of the ICP Algorithm to Nonrigid Intensity-Based Registration of 3D Volumes *Computer Vision and Image Understanding*, Academic Press, Vol. 66, No. 2, May, pp. 193–206, 1997. (J. Feldmar, J. Declerck, G. Malandain and N. Ayache).
23. Dense nonrigid motion estimation in sequences of medical images using differential constraints, *Int. Journal of Computer Vision*, Kluwer, 26 :1, pp. 25–40, 1998. (S. Benayoun and N. Ayache).
24. A parametric deformable model to fit unstructured 3D data, *Computer Vision and Image Understanding*, Academic Press, 71 :1, pp.39–54, 1998. (E. Bardinet, L. Cohen and N. Ayache).
25. Uniform distribution, distance and expectation problems for geometric features processing, *Journal of Mathematical Imaging and Vision*, Kluwer, Vol.9, pp. 49–67 (1998). (X. Pennec and N. Ayache).
26. A geometric algorithm to find small but highly similar 3D substructures in proteins, *Bioinformatics (CABIOS)*, 14 :6, pp. 516–522, 1998. (X. Pennec and N. Ayache).
27. Definition of a four-dimensional continuous planispheric transformation for the tracking and the analysis of left-ventricle motion. *Medical Image Analysis*, Vol. 2, No 2, pp.197–213, 1998. (J. Declerck, J. Feldmar and N. Ayache).
28. A General Scheme for Automatically Building 3D Morphometric Anatomical Atlases : application to a Skull Atlas. *Medical Image Analysis* Vol. 2, No 1, pp.37–60, 1998. (G. Subsol and J.P. Thirion and N. Ayache).
29. Virtual Reality applied to Hepatic Surgery Simulation : the next Revolution *Annals of Surgery*, 228 :5, pp. 627–634, 1998. (J. Marescaux and JM. Clement and V. Tassetti and C. Koehl and S. Cotin and Y. Russier and D. Mutter and H. Delingette and N. Ayache)
30. Simulation of Endoscopic Surgery. *Journal of Minimally Invasive Therapy and Allied Technologies (MITAT*, Vol.7, No.2. 1998. (N. Ayache and S. Cotin and H. Delingette et JM. Clement, and J. Marescaux and M. Nord).
31. Real-time elastic deformations of soft tissues for surgery simulation, *IEEE Transactions on Visualization and Computer Graphics*, Vol 5, No 1, pages 62–73, 1999. (S. Cotin and H. Delingette and N. Ayache).
32. Medical Image Analysis : Progress over two decades and the challenges ahead, *IEEE Transactions on Pattern Analysis and Machine Intelligence, PAMI*, 22(1), pp.85–106, 2000. (J. Duncan and N. Ayache). **Millenium Issue of PAMI**.
33. Unifying Maximum Likelihood Approaches in Medical Image Registration. *International Journal of Imaging Systems and Technology*, Wiley, Vol 11, pp.71–80,2000. (A. Roche, G. Malandain, N. Ayache).
34. Reconstructing a 3D Structure from Serial Histological Sections. *Image and Vision Computing Journal*, 19(2), pp.25–31, 2000. (S. Ourselin, A Roche, G. Subsol, X Pennec, N. Ayache).
35. A Hybrid Elastic Model allowing Real-Time Cutting, Deformations and Force-Feedback for Surgery Training and Simulation. *The Visual Computer*, 16(8) :437–452, 2000. (S. Cotin and H. Delingette and N. Ayache).
36. Multimodal Brain Warping Using the Demons Algorithm and Adaptative Intensity Corrections. *IEEE Trans. on Medical Imaging*, 20(1) :58–69, 2001. (A. Guimond, A. Roche, N. Ayache and J. Meunier)
37. Use of a 4-D planispheric transformation for the tracking and the Analysis of LV Motion with tagged MR Images *IEEE Trans. on Medical Imaging*, 2000. (J. Declerck, N. Ayache and E. McVeigh)
38. Model-based multiscale detection of tubular structures in 3D images. *Computer Vision and Image Understanding*, 80, pages 130–171, 2000. (K. Krissian, G Malandain, N. Ayache, R. Vaillant, and Y. Trousset)
39. Fully automatic anatomical, pathological, and functional segmentation from CT scans for hepatic surgery. Comput Aided Surg, 6(3) :131-42, 2001 (L Soler, N Ayache, J Marescaux et al.)
40. Rigid Registration of 3D ultrasound with MR Images : a new Intensity-Bsaed Approach Combining Intensity and Gradient Information, *IEEE Trans. on Medical Imaging*, 20 (10) :1038–1049, 2001. (A. Roche, X. Pennec, G. Malandain and N. Ayache).

41. A review of deformable surfaces : Topology, Geometry and Deformation, in *Image and Vision Computing*, 19, 1023–1040, 2001. (J. Montagnat, H. Delingette and N. Ayache).
42. Smoothness and degrees of freedom restrictions when using SPM99. in *NeuroImage*, 13(6) :259, 2001. (J. Stoeckel, J.P. Poline, G. Malandain, N. Ayache, and J. Darcourt).
43. Computation of the Mid-Sagittal Plane in 3D Brain Images. *IEEE Transactions on Medical Imaging*, 21(2) :122–138, 2002. (S. Prima, S. Ourselin, and N. Ayache).
44. Automatic Detection and Segmentation of Evolving Processes in 3D Medical Images : Application to Multiple Sclerosis. *Medical Image Analysis (MedIA, Elsevier)*, 6(2) :163-179, 2002. (D. Rey, G. Subsol, H. Delingette, and N. Ayache).
45. Improving realism of a surgery simulator : linear anisotropic elasticity, complex interactions and force extrapolation. *Journal of Visualisation and Computer Animation*, 13(3) :147-167, july 2002. (G. Picinbono, J-C. Lombardo, H. Delingette, and N. Ayache.)
46. Modèle déformable élastique non-linéaire pour la simulation de chirurgie en temps réel, *Les Comptes Rendus de l'Académie des Sciences* **CRAS**, C.R. Biologies, 325(4) :335-344, 2002. (G. Picinbono, H. Delingette and N. Ayache).
47. Non-Linear Anisotropic Elasticity for Real-Time Surgery Simulation. *Graphical Models*, 65(5) :305-321, September 2003. (G. Picinbono, H. Delingette and N. Ayache).
48. Anisotropic Filtering for Model Based Segmentation of 4D Cylindrical Echocardiographic Images, in *Pattern Recognition Letters*, 24(4-5) :815-828, February 2003. (J. Montagnat, M. Sermesant, H. Delingette, G. Malandain, and N. Ayache).
49. Iconic Feature Based Nonrigid Registration : The PASHA Algorithm. in *Computer Vision and Image Understanding* – Special Issue on Nonrigid Registration, to appear, 2003. (P. Cachier, E. Bardinet, D. Dormont, X. Pennec, and N. Ayache).
50. Tracking brain deformations in time-sequences of 3D US Images, *Pattern Recognition Letters* - Special Issue on Ultrasonic Image Processing and Analysis, 24(4-5) :801-813, February 2003. (X. Pennec, P. Cachier and N Ayache).
51. Deformable biomechanical models : Application to 4D cardiac image analysis. Medical Image Analysis, 7(4) :475-488, 2003. (M. Sermesant, C. Forest, X. Pennec, H. Delingette, and N. Ayache)
52. Retrospective evaluation of intersubject brain registration. IEEE Trans Med Imaging, 22(9) :1120-30, September 2003 (P Hellier, C Barillot, G Malandain, N Ayache, et al.)
53. Grid Powered Nonlinear Image Registration with Locally Adaptive Regularization. Medical Image Analysis, 8(3) :325-342, September 2004. (R. Stefanescu, X. Pennec, and N. Ayache.)
54. Création d'un Modèle Biomécanique Spécifique du Cerveau par l'Analyse d'Images et son Application à la Neurochirurgie Stéréotaxique. Mecanique et Industrie, 4(4) :429-433, 2003. Note : Numéro spécial CFM 2003. (O. Clatz, H. Delingette, E. Bardinet, D. Dormont, and N. Ayache.)
55. Iconic Feature Based Nonrigid Registration : The PASHA Algorithm. CVIU — Special Issue on Nonrigid Registration, 89(2-3) :272-298, 2003. (P. Cachier, E. Bardinet, D. Dormont, X. Pennec, and N. Ayache.)
56. Epidaure : a Research Project in Medical Image Analysis, Simulation and Robotics at INRIA. IEEE Trans. on Medical Imaging, 22(10) :1185-1201, October 2003. (N. Ayache.) **Invited peer-reviewed article**.
57. Grid-Enabled Non-Rigid Registration of Medical Images. Parallel Processing Letters, 14(2) :197-216, 2004. (R. Stefanescu, X. Pennec, and N. Ayache.)
58. 3-D tomographic reconstruction of coronary arteries using a precomputed 4-D motion field. Physics in Medicine and Biology, 49(11) :2197-2208, 2004. (Christophe Blondel, Régis Vaillant, Grégoire Malandain, and Nicholas Ayache.)
59. Traitement des images et radiothérapie. Cancer/Radiothérapie, 8(2) :120-129, 2004. (P.Y. Bondiau, G. Malandain, S. Chanalet, P.Y. Marcy, C. Foa, and N. Ayache.)
60. Generalized Image Models and Their Application as Statistical Models of Images. Medical Image Analysis, 8(3) :361-369, September 2004. (M. A. Gonzalez Ballester, X. Pennec, M. G. Linguraru, and N. Ayache.)
61. Traitement d'images médicales pour la planification, la simulation et l'aide intra-opératoire des actes chirurgicaux. La Revue de l'Electricité et de l'Electronique, pp 64-71, janvier 2004. (L. Soler, N. Ayache, S. Nicolau, X. Pennec, C. Forest, H. Delingette, and J. Marescaux.)

62. The contribution of automatic anatomical matching of sequential brain MRI scans in the monitoring of multiple sclerosis lesions. Rev Neurol (Paris), 160(8-9) :805-10, September 2004. Note : In French. Keyword(s) : multiple sclerosis. (C Lebrun, D Rey, S Chanalet, V Bourg, C Bensa, M Chatel, N Ayache, and G Malandain.)
63. Isotropic energies, filters and splines for vectorial regularization. J. of Math. Imaging and Vision, 20(3) :251-265, May 2004. (P. Cachier and N. Ayache.)
64. Expert Knowledge Guided Segmentation System for Brain MRI. NeuroImage, 23(supplement 1) :S85-S96, 2004. Note : Special Issue : Mathematics in Brain Imaging. (A. Pitiot, H. Delingette, P.M. Thompson, and N. Ayache.)
65. Hepatic Surgery Simulation. Communications of the ACM, 48(2) :31-36, February 2005. H. Delingette and N. Ayache. **Invited peer-reviewed article**.
66. Polyrigid and Polyaffine Transformations : a Novel Geometrical Tool to Deal with Non-Rigid Deformations - Application to the registration of histological slices. Medical Image Analysis, 9(6) :507-523, December 2005. Vincent Arsigny, Xavier Pennec, and Nicholas Ayache.
67. Atlas-based automatic segmentation of MR images : validation study on the brainstem in radiotherapy context. Int J Radiat Oncol Biol Phys, 61(1) :289-98, January 2005. Pierre-Yves Bondiau, Gregoire Malandain, Stephane Chanalet, Pierre-Yves Marcy, Jean-Louis Habrand, Francois Fauchon, Philippe Paquis, Adel Courdi, Olivier Commowick, Isabelle Rutten, and Nicholas Ayache.
68. Robust Non-Rigid Registration to Capture Brain Shift from Intra-Operative MRI. IEEE Transactions on Medical Imaging, 24(11) :1417-1427, Nov. 2005. Olivier Clatz, Hervé Delingette, Ion-Florin Talos, Alexandra J. Golby, Ron Kikinis, Ferenc A. Jolesz, Nicholas Ayache, and Simon K. Warfield.
69. Realistic Simulation of the 3D Growth of Brain Tumors in MR Images Coupling Diffusion with Mass Effect. IEEE Transactions on Medical Imaging, 24(10) :1334-1346, October 2005. Olivier Clatz, Maxime Sermesant, Pierre-Yves Bondiau, Hervé Delingette, Simon K. Warfield, Grégoire Malandain, and Nicholas Ayache.
70. Removing Tetrahedra from manifold tetrahedralisation : application to real-time surgical simulation. Medical Image Analysis, 9(2) :113-122, April 2005. C. Forest., H. Delingette, and N. Ayache.
71. An augmented reality system to guide radio-frequency tumor ablation. Computer Animation and Virtual World (previously the Journal of Visualization and Computer Animation), 16(1) :1-10, 2005. Stéphane Nicolau, Alain Garcia, Xavier Pennec, Luc Soler, and Nicholas Ayache.
72. Simulation of Cardiac Pathologies using an Electromechanical Biventricular Model and XMR Interventional Imaging. Medical Image Analysis, 9(5) :467-480, 2005. M. Sermesant, K. Rhode, G. Sanchez-Ortiz, O. Camara, R. Andriantsimiavona, S. Hegde, D. Rueckert, P. Lambiase, C. Bucknall, E. Rosenthal, H. Delingette, D. Hill, N. Ayache, and R. Razavi.
73. A Grid Service for the Interactive Use of a Parallel Non-Rigid Registration Algorithm of Medical Images. Methods of Information in Medicine, 44(2), 2005. Radu Stefanescu, Xavier Pennec, and Nicholas Ayache.
74. Computational Models for Image Guided, Robot-Assisted and Simulated Medical Interventions. Proceedings of the IEEE, 94(9) :1678- 1688, September 2006. (H Delingette, X Pennec, L Soler, J Marescaux, and N Ayache). **Invited peer-reviewed article**.
75. Log-Euclidean Metrics for Fast and Simple Calculus on Diffusion Tensors. Magnetic Resonance in Medicine, 56(2) :411-421, August 2006. Vincent Arsigny, Pierre Fillard, Xavier Pennec, and Nicholas Ayache.
76. Reconstruction of Coronary Arteries from a Single Rotational X-Ray Projection Sequence. IEEE Transactions on Medical Imaging, 25(5) :653-663, 2006. Christophe Blondel, Grégoire Malandain, Régis Vaillant, and Nicholas Ayache.
77. Modeles Biomathématiques de Croissance Des Gliomes : Recherche en Informatique et Perspectives en Neuro-oncologie. Neurologies, 9(93) :665-667, 2006. (O Clatz, E Mandonnet, S Chanalet, C Lebrun, E Konukoglu, H Delingette, N Ayache, and PY Bondiau.)
78. Differentiation of sCJD and vCJD Forms by Automated Analysis of Basal Ganglia Intensity Distribution in Multisequence MRI of the Brain - Definition and Evaluation of New MRI-based Ratios. IEEE Transactions on Medical Imaging, 25(8) :1052-1067, 2006. M.G. Linguraru, N. Ayache, E. Bardinet, M.A. Gonzalez Ballester, D. Galanaud, S. Haik, B.A. Faucheux, J.J. Hauw, P. Cozzone, D. Dormont, and J.P. Brandel.
79. Building Maps of Local Apparent Conductivity of the Epicardium with a 2D Electrophysiological Model of the Heart. IEEE Transactions on Biomedical Engineering, 53(8) :1457-1466, August 2006. V. Moreau-Villéger, H. Delingette, M. Sermesant, H. Ashikaga, O. Faris, E. McVeigh, and N. Ayache.

80. A Riemannian Framework for Tensor Computing. International Journal of Computer Vision, 66(1) :41-66, January 2006. Note : A preliminary version appeared as INRIA Research Report 5255, July 2004. Xavier Pennec, Pierre Fillard, and Nicholas Ayache.
81. An Electromechanical Model of the Heart for Image Analysis and Simulation. IEEE Transactions in Medical Imaging, 25(5) :612-625, 2006. M. Sermesant, H. Delingette, and N. Ayache.
82. Robust Mosaicing with Correction of Motion Distortions and Tissue Deformation for In Vivo Fibered Microscopy. Medical Image Analysis, 10(5) :673-692, October 2006. Note : Annual Medical Image Analysis (MedIA) **Best Paper Award** 2006. Tom Vercauteren, Aymeric Perchant, Grégoire Malandain, Xavier Pennec, and Nicholas Ayache.
83. Dynamic Model of Communicating Hydrocephalus for Surgery Simulation. IEEE Transactions on Biomedical Engineering, 54(4) :755-758, April 2007. O Clatz, S Litrico, H Delingette, P Paquis, and N Ayache.
84. Three-dimensional reconstruction of stained histological slices and 3D non-linear registration with in-vivo MRI for whole baboon brain. Journal of Neuroscience Methods, 164 :191-204, 2007. J Dauguet, T Delzescaux, F Condé, JF Mangin, N Ayache, P Hantraye, and V Frouin.
85. Clinical DT-MRI Estimation, Smoothing and Fiber Tracking with Log-Euclidean Metrics. IEEE Transactions on Medical Imaging, 26(11) :1472-1482, November 2007. Note : PMID : 18041263. P Fillard, V Arsigny, X Pennec, and N Ayache.
86. Measuring Brain Variability by Extrapolating Sparse Tensor Fields Measured on Sulcal Lines. Neuroimage, 34(2) :639-650, January 2007. PMID : 17113311. P Fillard, V Arsigny, X Pennec, K M. Hayashi, P M. Thompson, and N Ayache.
87. A Computational Framework for the Statistical Analysis of Cardiac Diffusion Tensors : Application to a Small Database of Canine Hearts. IEEE Transactions on Medical Imaging, 26(11) :1500-1514, November 2007. Note : PMID : 18041265. JM Peyrat, M Sermesant, X Pennec, H Delingette, CY Xu, E R. McVeigh, and N Ayache.
88. Geometric Means in a Novel Vector Space Structure on Symmetric Positive-Definite Matrices. SIAM Journal on Matrix Analysis and Applications, 29(1) :328-347, 2007. V Arsigny, P Fillard, X Pennec, and N Ayache.
89. Deformable Atlases for the Segmentation of Internal Brain Nuclei in Magnetic Resonance Imaging. International Journal of Computers, Communication and Control, 2(1) :26-36, 2007. M G. Linguraru, M A. Gonzalez Ballester, and N Ayache.
90. Segmentation Propagation from Deformable Atlases for Brain Mapping and Analysis. Brain Research Journal, 1(4) :269-287, 2007. M G Linguraru, T Vercauteren, M Reyes Aguirre, M A Gonzalez Ballester, and N Ayache.
91. A three-dimensional, histological and deformable atlas of the human basal ganglia. I. Atlas construction based on immunohistochemical and MRI data. Neuroimage, 34(2) :618-38, January 2007. J Yelnik, E Bardinet, D Dormont, G Malandain, S Ourselin, D Tandé, C Karachi, N Ayache, P Cornu, and Y Agid.
92. Articulated Spine Models for 3D Reconstruction from Partial Radiographic Data. IEEE Transactions on Biomedical Engineering, 55(11) :2565-2574, November 2008. Note : PMID : 18990626. J Boisvert, F Cheriet, X Pennec, H Labelle, and N Ayache.
93. Geometric Variability of the Scoliotic Spine using Statistics on Articulated Shape Models. IEEE Trans. Med. Imaging, 27(4) :557-568, 2008. PMID : 18390352. J Boisvert, F Cheriet, X Pennec, H Labelle, and N Ayache.
94. Principal Deformations Modes of Articulated Models for the Analysis of 3D Spine Deformities. Electronic Letters on Computer Vision and Image Analysis, 7(4) :13-31, December 2008. J Boisvert, F Cheriet, X Pennec, H Labelle, and N Ayache.
95. Biocomputing : numerical simulation of glioblastoma growth using diffusion tensor imaging.. Phys Med Biol, 53(4) :879-93, February 2008. P.Y Bondiau, O Clatz, M Sermesant, P.Y Marcy, H Delingette, M Frenay, and N Ayache.
96. An Efficient Locally Affine Framework for the Smooth Registration of Anatomical Structures. Medical Image Analysis, 12(4) :427-441, 2008. O Commowick, V Arsigny, A Isambert, J Costa, F Dhermain, F Bidault, P-Y Bondiau, N Ayache, and G Malandain.
97. Inferring brain variability from diffeomorphic deformations of currents : an integrative approach. Medical Image Analysis, 12(5) :626-637, 2008. Note : PMID : 18658005. S Durrleman, X Pennec, A Trouvé, P Thompson, and N Ayache.
98. In Vivo Detection of Thalamic Gliosis : A Pathoradiologic Demonstration in Familial Fatal Insomnia. Arch Neurol, 65(4) :545-549, April 2008. S Haik, D Galanaud, MG Linguraru, K Peoc'h, N Privat, BA Faucheux, N Ayache, JJ Hauw, D Dormont, and JP Brandel.

99. Generation of a Statistical Shape Model with Probabilistic Point Correspondences and EM-ICP. International Journal for Computer Assisted Radiology and Surgery (IJCARS), 2(5) :265-273, March 2008. H. Hufnagel, X. Pennec, J. Ehrhardt, N. Ayache, and H. Handels.
100. Toward patient-specific myocardial models of the heart. Heart Failure Clinics, 4(3) :289-301, July 2008. M Sermesant, J M Peyrat, P Chinchapatnam, F Billet, T Mansi, K Rhode, H Delingette, R Razavi, and N Ayache.
101. A Fast and Log-Euclidean Polyaffine Framework for Locally Linear Registration. J. of Math. Imaging and Vision (JMIV), 33(2) :222-238, 2009. Vincent Arsigny, Olivier Commowick, Nicholas Ayache, and Xavier Pennec.
102. A three-dimensional histological atlas of the human basal ganglia. II. Atlas deformation strategy and evaluation in deep brain stimulation for Parkinson disease.. Journal of neurosurgery, 110(2) :208-19, February 2009. Eric Bardinet, Manik Bhattacharjee, Didier Dormont, Bernard Pidoux, Gregoire Malandain, Michael Schupbach, Nicholas Ayache, Philippe Cornu, Yves Agid, and Jerome Yelnik.
103. Statistical Models on Sets of Curves and Surfaces based on Currents. Medical Image Analysis, 13(5) :793-808, October 2009. Stanley Durrleman, Xavier Pennec, Alain Trouvé, and Nicholas Ayache.
104. Computation of a Probabilistic Statistical Shape Model in a Maximum-a-posteriori Framework. Methods of Information in Medicine, 48(4) :314-319, 2009. Heike Hufnagel, Jan Ehrhardt, Xavier Pennec, Nicholas Ayache, and Heinz Handels.
105. An Augmented Reality System for Liver Thermal Ablation : Design and Evaluation on Clinical Cases. Medical Image Analysis, 13(3) :494-506, June 2009. S. Nicolau, Xavier Pennec, L. Soler, X. Buy, A. Gangi, Nicholas Ayache, and J. Marescaux.
106. Registration of 4D Cardiac CT Sequences Under Trajectory Constraints With Multichannel Diffeomorphic Demons. IEEE Transactions on Medical Imaging, In Press 2009. Jean-Marc Peyrat, Hervé Delingette, Maxime Sermesant, Chenyang Xu, and Nicholas Ayache.
107. Fusion of optical imaging and MRI for the evaluation and adjustment of macroscopic models of cardiac electrophysiology : A feasibility study. Medical Image Analysis, 13(2) :370-80, April 2009. M Pop, Maxime Sermesant, D Lepiller, M V Truong, E R McVeigh, E Crystal, A Dick, Hervé Delingette, Nicholas Ayache, and G. A. Wright.
108. Revue des approches de segmentation des lésions de sclérose en plaques dans les séquences conventionnelles IRM. Revue Neurologique, 165(1) :7-14, 2009. Note : In French. Jean-Christophe Souplet, Christine Lebrun, Stéphane Chanalet, Nicholas Ayache, and Grégoire Malandain.
109. Diffeomorphic Demons : Efficient Non-parametric Image Registration. NeuroImage, 45(1, Supp.1) :S61-S72, March 2009. Note : PMID : 19041946. Tom Vercauteren, Xavier Pennec, Aymeric Perchant, and Nicholas Ayache.
110. DT-REFinD : Diffusion Tensor Registration with Exact Finite-Strain Differential. IEEE Transactions on Medical Imaging, 28(12) :1914-1928, December 2009. Boon Thye Thomas Yeo, Tom Vercauteren, Pierre Fillard, Jean-Marc Peyrat, Xavier Pennec, Polina Golland, Nicholas Ayache, and Olivier Clatz.
111. Extrapolating Glioma Invasion Margin in Brain Magnetic Resonance Images : Suggesting New Irradiation Margins. Medical Image Analysis, 14(2) :111-125, 2010. Ender Konukoglu, Olivier Clatz, Pierre-Yves Bondiau, Hervé Delingette, and Nicholas Ayache.
112. Image Guided Personalization of Reaction-Diffusion Type Tumor Growth Models Using Modified Anisotropic Eikonal Equations. IEEE Transactions on Medical Imaging, 29(1) :77-95, 2010. Ender Konukoglu, Olivier Clatz, Bjoern H. Menze, Marc-André Weber, Bram Stieltjes, Emmanuel Mandonnet, Hervé Delingette, and Nicholas Ayache
113. Combined diffusion imaging and MR Spectroscopy in Human Prion Diseases. American Journal of Neuroradiology, 31(7) :1311-8, 2010. Damien Galanaud, Stéphane Haik, Marius George Linguraru, Jean-Philippe Ranjeva, Baptiste Faucheux, Elsa Kaphan, Nicholas Ayache, Jacques Chiras, Patrick Cozzone, Didier Dormont, and Jean-Philippe Brandel.
114. Registration of 4D Cardiac CT Sequences Under Trajectory Constraints With Multichannel Diffeomorphic Demons. IEEE Transactions on Medical Imaging, 29(7) :1351-1368, July 2010. Jean-Marc Peyrat, Hervé Delingette, Maxime Sermesant, Chenyang Xu, and Nicholas Ayache
115. Spherical Demons : Fast Diffeomorphic Landmark-Free Surface Registration. IEEE Transactions on Medical Imaging, 29(3) :650-668, March 2010. Boon Thye Thomas Yeo, Mert Sabuncu, Tom Vercauteren, Nicholas Ayache, Bruce Fischl, and Polina Golland.

116. Vers un patient numérique personnalisé pour le diagnostic et la thérapie guidés par l'image. Médecine / Sciences, 27 :208-213, March 2011. Nicholas Ayache, Olivier Clatz, Hervé Delingette, Grégoire Malandain, Xavier Pennec, and Maxime Sermesant.

117. Le coeur numérique personnalisé. Bulletin de l'Académie Nationale de Médecine, 195(8), November 2011. Nicholas Ayache, Hervé Delingette, Maxime Sermesant.

118. A Smart Atlas for Endomicroscopy using Automated Video Retrieval. Medical Image Analysis, 15(4) :460-476, August 2011. Barbara André, Tom Vercauteren, Anna M. Buchner, Michael B. Wallace, and Nicholas Ayache.

119. Inter-Model Consistency and Complementarity : Learning from ex-vivo Imaging and Electrophysiological Data towards an Integrated Understanding of Cardiac Physiology. Progress in Biophysics and Molecular Biology, 107 :122-133, 2011. O. Camara, M. Sermesant, P. Lamata, L. Wang, M.Pop, J. Relan, M. De Craene, H. Delingette, H. Liu, S. Niederer, G. Plank A. Pashaei and, D. Romero, R. Sebastian, K.C.L. Wong, H. Zhang, N. Ayache, A.F. Frangi, P. Shi, N.P. Smith, and G.A. Wright.

120. Personalization of Cardiac Motion and Contractility from Images using Variational Data Assimilation. IEEE Transactions in Biomedical Engineering Letters, December 2011. Note : In Press. H. Delingette, F. Billet, K. C. L. Wong, M. Sermesant, K. Rhode, M. Ginks, C. A. Rinaldi, R. Razavi, and N. Ayache.

121. Registration, Atlas Estimation and Variability Analysis of White Matter Fiber Bundles Modeled as Currents. NeuroImage, 55(3) :1073-1090, 2011. Stanley Durrleman, Pierre Fillard, Xavier Pennec, Alain Trouvé, and Nicholas Ayache.

122. Spatial Decision Forests for MS Lesion Segmentation in Multi-Channel Magnetic Resonance Images, NeuroImage, 57(2) :378-90, July 2011. Ezequiel Geremia, Olivier Clatz, Bjoern H. Menze, Ender Konukoglu, Antonio Criminisi, and Nicholas Ayache.

123. Efficient Probabilistic Model Personalization Integrating Uncertainty on Data and Parameters : Application to Eikonal-Diffusion Models in Cardiac Electrophysiology. Progress in Biophysics and Molecular Biology, December 2011. Note : Accepted. E. Konukoglu, J. Relan, U. Cilingir, B. Menze, P. Chinchapatnam, A. Jadidi, H. Cochet, M. Hocini, H. Delingette, P. JaÃ¯s, M. HaÃ¯ssaguerre, N. Ayache, and M. Sermesant.

124. iLogDemons : A Demons-Based Registration Algorithm for Tracking Incompressible Elastic Biological Tissues. Int. J. of Computer Vision, 92(1) :92-111, 2011. Tommaso Mansi, Xavier Pennec, Maxime Sermesant, Hervé Delingette, and Nicholas Ayache

125. A Statistical Model for Quantification and Prediction of Cardiac Remodelling : Application to Tetralogy of Fallot. Transactions on Medical Imaging, 9(30) :1605-1616, September 2011. Tommaso Mansi, Ingmar Voigt, Benedetta Leonardi, Xavier Pennec, Stanley Durrleman, Maxime Sermesant, Hervé Delingette, Andrew M. Taylor, Younes Boudjemline, Giacomo Pongiglione, and Nicholas Ayache.

126. Evaluation of Registration Methods on Thoracic CT : The EMPIRE10 Challenge. IEEE Transactions on Medical Imaging, 2011. Keelin Murphy, Bram van Ginneken, Joseph M. Reinhardt, Sven Kabus, Kai Ding, Xiang Deng, Kunlin Cao, Kaifang Du, Gary E. Christensen, Vincent Garcia, Tom Vercauteren, Nicholas Ayache, Olivier Commowick, Gregoire Malandain, Ben Glocker, Nikos Paragios, Nassir Navab, Vladlena Gorbunova, Jon Sporring, Marleen de Bruijne, Xiao Han, Mattias P. Heinrich, Julia A. Schnabel, Mark Jenkinson, Cristian Lorenz, Marc Modat, Jamie R. McClelland, Sebastien Ourselin, Sascha E.A. Muenzing, Max A. Viergever, Dante De Nigris, D. Louis Collins, Tal Arbel, Marta Peroni, Rui Li, Gregory C. Sharp, Alexander Schmidt-Richberg, Jan Ehrhardt, Rene Werner, Dirk Smeets, Dirk Loeckx, Gang Song, Nicholas Tustison, Brian Avants, James C. Gee, Marius Staring, Stefan Klein, Berend C. Stoel, Martin Urschler, Manuel Werlberger, Jef Vandemeulebroucke, Simon Rit, David Sarrut, and Josien P.W. Pluim.

127. A Multi-Front Eikonal Model of Cardiac Electrophysiology for Interactive Simulation of Radio-Frequency Ablation. Computers and Graphics, 35 :431-440, 2011. E. Pernod, M. Sermesant, E. Konukoglu, J. Relan, H. Delingette, and N. Ayache.

128. A New Metric for Detecting Change in Slowly Evolving Brain Tumors : Validation in Meningioma Patients. Neurosurgery, 68(1 Suppl Operative) :225-33, March 2011. K.M Pohl, E. Konukoglu, S. Novellas, N. Ayache, A. Fedorov, I.-F. Talos, A. Golby, W.M. Wells, R. Kikinis, and P.M. Black.

129. Personalisation of a Cardiac Electrophysiology Model using Optical Mapping and MRI for Prediction of Changes with Pacing. IEEE Transactions on Bio-Medical Engineering, 58(12) :3339-3349, 2011. Jatin Relan, Mihaela Pop, Hervé Delingette, Graham Wright, Nicholas Ayache, and Maxime Sermesant.

130. Coupled Personalization of Cardiac Electrophysiology Models for Prediction of Ischaemic Ventricular Tachycardia. Journal of the Royal Society Interface Focus, 1(3) :396-407, 2011. Jatin Relan, Phani Chinchapatnam,

Maxime Sermesant, Kawal Rhode, Matt Ginks, Hervé Delingette, C. Aldo Rinaldi, Reza Razavi, and Nicholas Ayache.

131. EuHeart : Personalized and integrated cardiac care using patient-specific cardiovascular modelling. Journal of the Royal Society Interface Focus, 1(3) :349-364, 2011. N. Smith, A. de Vecchi, M. McCormick, D. Nordsletten, O. Camara, A.F. Frangi, H. Delingette, M. Sermesant, J. Relan, N. Ayache, M. W. Krueger, W. Schulze, R. Hose, I. Valverde, P. Beerbaum, C. Staicu, M. Siebes, J. Spaan, P. Hunter, J. Weese, H. Lehmann, D. Chapelle, and R. Razavi.
132. Learning Semantic and Visual Similarity for Endomicroscopy Video Retrieval. IEEE Transactions on Medical Imaging, 31(6) :1276-1288, June 2012. Barbara André, Tom Vercauteren, Anna M. Buchner, Michael B. Wallace, and Nicholas Ayache.
133. Software for Automated Classification of probe-based Confocal Laser Endomicroscopy Videos of Colorectal Polyps. World Journal of Gastroenterology, 2012. Barbara André, Tom Vercauteren, Anna M. Buchner, Murli Krishna, Nicholas Ayache, and Michael B. Wallace.
134. Integration of Merged Delayed-Enhanced Magnetic Resonance Imaging and Multi-Detector Computed Tomography for the Guidance of Ventricular Tachycardia Ablation : A Pilot Study. Journal of Cardiovascular Electrophysiology, 2012. ISSN : 1540-8167. H. Cochet, Y. Komatsu, F. Sacher, A. Jadidi, D. Scherr, M. Riffaud, N. Derval, A. Shah, L. Roten, P. Pascale, Jatin Relan, Maxime Sermesant, Nicholas Ayache, M. Montaudon, F. Laurent, M. Hocini, M. Haissaguerre, and P. Jais.
135. Personalization of Cardiac Motion and Contractility From Images Using Variational Data Assimilation. Biomedical Engineering, IEEE Transactions on, 59(1) :20 -24, jan. 2012. H. Delingette, F. Billet, K.C.L. Wong, M. Sermesant, K. Rhode, M. Ginks, C.A. Rinaldi, R. Razavi, and N. Ayache.
136. Comparison of the endocranial ontogenies between chimpanzees and bonobos via temporal regression and spatiotemporal registration. Journal of Human Evolution, 62(1) :74 - 88, 2012. Stanley Durrleman, Xavier Pennec, Alain Trouvé, Nicholas Ayache, and José Braga.
137. Toward a Comprehensive Framework for the Spatiotemporal Statistical Analysis of Longitudinal Shape Data. International Journal of Computer Vision, pp 1-38, November 2012. ISSN : 0920-5691. Stanley Durrleman, Xavier Pennec, Alain Trouvé, José Braga, Guido Gerig, and Nicholas Ayache.
138. Computational modeling of the right ventricle in repaired tetralogy of Fallot : Can it provide insight into patient treatment ?. European Heart Journal - Cardiovascular Imaging, November 2012. Benedetta Leonardi, Andrew Taylor, Tommaso Mansi, Ingmar Voigt, Maxime Sermesant, Xavier Pennec, Nicholas Ayache, Younes Boudjemline, and Giacomo Pongiglione.
139. Human Atlas of the Cardiac Fiber Architecture : Study on a Healthy Population. IEEE Trans. on Medical Imaging, 31(7) :1436-1447, 2012. Hervé Lombaert, Jean-Marc Peyrat, Pierre Croisille, Stanislas Rapacchi, Laurent Fanton, Farida Cheriet, Patrick Clarysse, Isabelle Magnin, Hervé Delingette, and Nicholas Ayache.
140. Preliminary Specificity Study of the Bestel-Clément-Sorine Electromechanical Model of the Heart using Parameter Calibration from Medical Images. Journal of the Mechanical Behavior of Biomedical Materials, 2012. Stéphanie Marchesseau, Hervé Delingette, Maxime Sermesant, M. Sorine, Kawal Rhode, S.G. Duckett, C. Aldo Rinaldi, Reza Razavi, and Nicholas Ayache.
141. Fast Parameter Calibration of a Cardiac Electromechanical Model from Medical Images based on the Unscented Transform. Biomechanics and Modeling in Mechanobiology, 2012. S. Marchesseau, H. Delingette, M. Sermesant, and N. Ayache.
142. Construction of 3D MR image-based computer models of pathologic hearts, augmented with histology and optical fluorescence imaging to characterize action potential propagation. Medical Image Analysis, 16(2) :505-523, February 2012. M. Pop, Maxime Sermesant, G. Liu, Jatin Relan, Tommaso Mansi, A. Soong, Jean-Marc Peyrat, M.V. Truong, P. Fefer, Elliot R. McVeigh, Hervé Delingette, A.J. Dick, Nicholas Ayache, and G.A Wright.
143. Patient-Specific Electromechanical Models of the Heart for Prediction of the Acute Effects of Pacing in CRT : a First Validation. Medical Image Analysis, 16(1) :201-215, 2012. M. Sermesant, R. Chabiniok, P. Chinchapatnam, T. Mansi, F. Billet, P. Moireau, J.M. Peyrat, K. Wong, J. Relan, K. Rhode, M. Ginks, P. Lambiase, H. Delingette, M. Sorine, C.A. Rinaldi, D. Chapelle, R. Razavi, and N. Ayache.
144. Generation of Synthetic but Visually Realistic Time Series of Cardiac Images Combining a Biophysical Model and Clinical Images. Medical Imaging, IEEE Transactions on,32(1) :99-109, January 2013. Adityo Prakosa, Maxime Sermesant, Hervé Delingette, Stéphanie Marchesseau, Eric Saloux, Pascal Allain, Nicolas Villain, and Nicholas Ayache.

145. Tumor Growth Parameters Estimation and Source Localization From a Unique Time Point : Application to Low-grade Gliomas. Computer Vision and Image Understanding, 117(3) :238-249, 2013. Islem Rekik, Stéphanie Allassonnière, Olivier Clatz, Ezequiel Geremia, Erin Stretton, Hervé Delingette, and Nicholas Ayache.

146. Toward a Comprehensive Framework for the Spatiotemporal Statistical Analysis of Longitudinal Shape Data. International Journal of Computer Vision, 103(1) :22-59, May 2013. Stanley Durrleman, Xavier Pennec, Alain Trouvé, José Braga, Guido Gerig, and Nicholas Ayache.

147. Regional myocardial wall thinning at multidetector computed tomography correlates to arrhythmogenic substrate in postinfarction ventricular tachycardia : assessment of structural and electrical substrate. Circulation Arrhythmia and Electrophysiology, 6(2) :342-350, 2013. Yuki Komatsu, Hubert Cochet, Amir Jadidi, Frédéric Sacher, Ashok Shah, Nicolas Derval, Daniel Scherr, Patrizio Pascale, Laurent Roten, Arnaud Denis, Khaled Ramoul, Shinsuke Miyazaki, Matthew Daly, Matthieu Riffaud, Maxime Sermesant, Jatin Relan, Nicholas Ayache, Steven Kim, Michel Montaudon, FranÃ§ois Laurent, Mélèze Hocini, Michel HaÃ¯ssaguerre, and Pierre JaÃ¯s.

148. Computational modelling of the right ventricle in repaired tetralogy of Fallot : can it provide insight into patient treatment ?. European Heart Journal - Cardiovascular Imaging, 14(4) :381-6, April 2013. Benedetta Leonardi, Andrew Taylor, Tommaso Mansi, Ingmar Voigt, Maxime Sermesant, Xavier Pennec, Nicholas Ayache, Younes Boudjemline, and Giacomo Pongiglione.

149. LCC-Demons : a robust and accurate symmetric diffeomorphic registration algorithm. NeuroImage, 81(1) :470-483, 2013. Marco Lorenzi, Nicholas Ayache, B. Frisoni, Giovanni, and Xavier Pennec.

150. Personalization of a Cardiac Electromechanical Model using Reduced Order Unscented Kalman Filtering from Regional Volumes. Medical Image Analysis, 17(7) :816-829, May 2013. Stéphanie Marchesseau, Hervé Delingette, Maxime Sermesant, Rocio Cabrera Lozoya, Catalina Tobon-Gomez, Philippe Moireau, Rosa Maria Figueras I Ventura, Karim Lekadir, Alfredo Hernandez, Mireille Garreau, Erwan Donal, Christophe Leclercq, Simon G. Duckett, Kawal Rhode, Christopher Aldo Rinaldi, Alejandro F. Frangi, Reza Razavi, Dominique Chapelle, and Nicholas Ayache.

151. Preliminary Specificity Study of the Bestel-Clément-Sorine Electromechanical Model of the Heart using Parameter Calibration from Medical Images. Journal of the mechanical behavior of biomedical materials, 20 :259-271, 2013. Stéphanie Marchesseau, Hervé Delingette, Maxime Sermesant, Michel Sorine, Kawal Rhode, Simon G. Duckett, Christopher Aldo Rinaldi, Reza Razavi, and Nicholas Ayache.

152. Cardiac Electrophysiological Activation Pattern Estimation from Images using a Patient-Specific Database of Synthetic Image Sequences. IEEE Transactions on Biomedical Engineering, 2013. Adityo Prakosa, Maxime Sermesant, Pascal Allain, Nicolas Villain, Christopher Aldo Rinaldi, Kawal Rhode, Reza Razavi, Hervé Delingette, and Nicholas Ayache.

153. Understanding the mechanisms amenable to CRT response : from pre-operative multimodal image data to patient-specific computational models. Medical and Biological Engineering and Computing, pp 1-16, 2013. Catalina Tobon-Gomez, Nicolas Duchateau, Rafael Sebastian, Stéphanie Marchesseau, Oscar Camara, Erwan Donal, Mathieu De Craene, Ali Pashaei, Jatin Relan, Martin Steghofer, Pablo Lamata, Hervé Delingette, Simon G. Duckett, Mireille Garreau, Alfredo Hernandez, S. Rhode, Kawal, Maxime Sermesant, Nicholas Ayache, Christophe Leclercq, Reza Razavi, P. Smith, Nicolas, and Alejandro F. Frangi.

154. Radiotherapy planning for glioblastoma based on a tumor growth model : implications for spatial dose redistribution. Physics in Medicine and Biology, December 2013. Jan Unkelbach, Bjoern Menze, Ender Konukoglu, Florian Dittmann, Nicholas Ayache, and Helen Shi.

155. Radiotherapy planning for glioblastoma based on a tumor growth model : improving target volume delineation. Physics in Medicine and Biology, December 2013. Jan Unkelbach, Bjoern Menze, Ender Konukoglu, Florian Dittmann, Matthieu Le, Nicholas Ayache, and Helen Shi.

156. Personalized Cardiac Modeling and Simulations in euHeart. Medical and Biological Engineering and Computing, 2013. Note : Editorial. J. Weese, Nicholas Ayache, and P. Smith.

157. Classification Forests for Semantic Segmentation of Brain Lesions in Multi-channel MRI. In Antonio Criminisi and J. Shotton, editors, Decision Forests for Computer Vision and Medical Image Analysis, Advances in Computer Vision and Pattern Recognition, pages 245-260. Springer London, 2013. Ezequiel Geremia, Darko Zikic, Olivier Clatz, H. Menze, Bjoern, Ben Glocker, Ender Konukoglu, Jamie Shotton, O. M. Thomas, S. J. Price, Tilak Das, Raj Jena, Nicholas Ayache, and Antonio Criminisi.

158. Expert-validated CSF segmentation of MNI atlas enhances accuracy of virtual glioma growth patterns. Journal of Neuro-Oncology, 2014. A Amelot, E Stretton, Hervé Delingette, N Ayache, S Froelich, and E Mandonnet.

159. Relationship Between MDCT-Imaged Myocardial Fat and Ventricular Tachycardia Substrate in Arrhythmogenic Right Ventricular Cardiomyopathy. Journal of the American Heart Association, 3(4) :10, 2014. Y. Komatsu, A. Jadidi, F. Sacher, A. Denis, M. Daly, N. Derval, A. Shah, H. Lehrmann, C.-I. Park, R. Weber, T. Arentz, G. Pache, Maxime Sermesant, N. Ayache, J. Relan, M. Montaudon, F. Laurent, M. Hocini, M. Haissaguerre, P. Jais, and H. Cochet.

160. Spectral Log-Demons : Diffeomorphic Image Registration with Very Large Deformations. International Journal of Computer Vision, 107(3) :254-271, May 2014. Herve Lombaert, Leo Grady, Xavier Pennec, Nicholas Ayache, and Farida Cheriet.

161. Disentangling Normal Aging from Alzheimer's Disease in Structural MR Images. Neurobiology of Aging, September 2014. Marco Lorenzi, Xavier Pennec, Giovanni B. Frisoni, and Nicholas Ayache.

162. The Multimodal Brain Tumor Image Segmentation Benchmark (BRATS). IEEE Transactions on Medical Imaging, pp 33, 2014. Bjoern Menze, Andras Jakab, Stefan Bauer, Jayashree Kalpathy-Cramer, Keyvan Farahani, Justin Kirby, Yuliya Burren, Nicole Porz, Johannes Slotboom, Roland Wiest, Levente Lanczi, Elisabeth Gerstner, Marc-Andre Weber, Tal Arbel, Brian Avants, Nicholas Ayache, Patricia Buendia, Louis Collins, Nicolas Cordier, Jason Corso, Antonio Criminisi, Tilak Das, Hervé Delingette, Cagatay Demiralp, Christopher Durst, Michel Dojat, Senan Doyle, Joana Festa, Florence Forbes, Ezequiel Geremia, Ben Glocker, Polina Golland, Xiaotao Guo, Andac Hamamci, Khan Iftekharuddin, Raj Jena, Nigel John, Ender Konukoglu, Danial Lashkari, Jose Antonio Mariz, Raphael Meier, Sergio Pereira, Doina Precup, S. J. Price, Tammy Riklin-Raviv, Syed Reza, Michael Ryan, Lawrence Schwartz, Hoo-Chang Shin, Jamie Shotton, Carlos Silva, Nuno Sousa, Nagesh Subbanna, Gabor Szekely, Thomas Taylor, Owen Thomas, Nicholas Tustison, Gozde Unal, Flor Vasseur, Max Wintermark, Dong Hye Ye, Liang Zhao, Binsheng Zhao, Darko Zikic, Marcel Prastawa, Mauricio Reyes, and Koen Van Leemput.

163. A Collaborative Resource to Build Consensus for Automated Left Ventricular Segmentation of Cardiac MR Images. Medical Image Analysis, 18(1) :50-62, 2014. Avan Suinesiaputra, Brett Cowan, Ahmed O. Al-Agamy, Mustafa A. Alattar, Nicholas Ayache, Ahmed S. Fahmy, Ayman M. Khalifa, Pau Medrano-Gracia, Marie-Pierre Jolly, Alan H. Kadish, Daniel C. Lee, Jan Margeta, Simon K. Warfield, and Alistair Young.

164. Velocity-based cardiac contractility personalization from images using derivative-free optimization. Journal of the mechanical behavior of biomedical materials, pp 17, December 2014. Ken C.L. Wong, Maxime Sermesant, Kawal Rhode, Matthew Ginks, C. Aldo Rinaldi, Reza Razavi, Hervé Delingette, and Nicholas Ayache.

165. Expert-validated CSF segmentation of MNI atlas enhances accuracy of virtual glioma growth patterns. Journal of Neuro-Oncology, 121(2) :381-387, 2015. A Amelot, E Stretton, Hervé Delingette, Nicholas Ayache, S Froelich, and E Mandonnet.

166. Efficient Lattice Boltzmann Solver for Patient-Specific Radiofrequency Ablation of Hepatic Tumors. IEEE Transactions on Medical Imaging, 34(issue 7) :p 1576-1589, 2015. Chloé Audigier, Tommaso Mansi, Hervé Delingette, Saikiran Rapaka, Viorel Mihalef, Daniel Carnegie, Emad Boctor, Michael Choti, Ali Kamen, Nicholas Ayache, and Dorin Comaniciu

167. A patch-based approach for the segmentation of pathologies : Application to glioma labelling. IEEE Transactions on Medical Imaging, PP(99), December 2015. Nicolas Cordier, Hervé Delingette, and Nicholas Ayache.

168. 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. Marco Lorenzi, Nicholas Ayache, and Xavier Pennec.

169. Disentangling normal aging from Alzheimer's disease in structural magnetic resonance images. Neurobiology of Aging, 36 :S42-S52, January 2015. Marco Lorenzi, Xavier Pennec, Giovanni B. Frisoni, and Nicholas Ayache.

170. A generative probabilistic model and discriminative extensions for brain lesion segmentation – with application to tumor and stroke. IEEE Transactions on Medical Imaging, November 2015. Bjoern H Menze, Koen Van Leemput, Danial Lashkari, Tammy Riklin-Raviv, Ezequiel Geremia, Esther Alberts, Philipp Gruber, Susanne Wegener, Marc-Andre Weber, Gabor Szekely, Nicholas Ayache, and Polina Golland.

171. Impact of the surgical experience on cochleostomy location : a comparative temporal bone study between endaural and posterior tympanotomy approaches for cochlear implantation. European Archives of Oto-Rhino-Laryngology, pp 1-7, 2015. Clair Vandersteen, Thomas Demarcy, Coralie Roger, Eric Fontas, Charles Raffaelli, Nicholas Ayache, Hervé Delingette, and Nicolas Guevara.

172. Inter-Operative Biopsy Site Relocalization in Endoluminal Surgery. IEEE Transactions on Biomedical Engineering, 2015. Anant S. Vemuri, Stephane A. Nicolau, Adrien Sportes, Jacques Marescaux, Luc Soler, and Nicholas Ayache.

173. Velocity-based cardiac contractility personalization from images using derivative-free optimization. Journal of the mechanical behavior of biomedical materials, 43 :35-52, March 2015. Ken C.L. Wong, Maxime Sermesant, Kawal Rhode, Matthew Ginks, C. Aldo Rinaldi, Reza Razavi, Hervé Delingette, and Nicholas Ayache.

Refereed International Conference Publications (selection)

1. Recognition of partially visible planar shapes. *6th Int. Conf. on Pattern Recognition*, Munich, Sept. 1982, (N. Ayache and O. Faugeras).
2. Toward a flexible vision system. *Robot Vision*, IFS Publications, Springer Verlag, 1983, (N. Ayache and O. Faugeras, F. Germain, G. Kryze, J–D. Boissonnat, M. Hébert, J. Ponce, E. Pauchon), pp. 129–142.
3. A model based vision system to identify and locate partially visible industrial parts. *IEEE Conference on Computer Vision and Pattern Recognition*, Washington, D.C., pp. 492–494, June 1983. (N. Ayache).
4. A new method for recognition and positioning of 2–d objects. *7th Int. Conf. on Pattern Recognition*, Montréal, pp. 1274–1277, July 1984, (N. Ayache and O. Faugeras).
5. Automatic handling of overlapping workpieces. *7th Int. Conf. on Pattern Recognition*, Montréal, Canada, pp. 837–839, July 1984, (N. Ayache and J.D. Boissonnat, B. Bollack, and B. Faverjon).
6. A geometric matcher for recognizing and positioning 3–d rigid objects. *1st IEEE Int. Conf. on the Applications of Artificial Intelligence*, Denver, Dec. 1984, (N. Ayache and O.D. Faugeras, B. Faverjon, and G. Toscani), Also in Int. Conf. on Intelligent Robots and Computer Vision, Proc. of the SPIE, Oct. 1984.
7. Fast stereo matching of edge segments using prediction and verification of hypotheses. *3rd Workshop on Computer Vision, Representation and Control*, Bellaire, Michigan (USA), pp. 27–37, Oct. 1985. Reduced paper in Proc. of IEEE Conf. on Computer Vision and Pattern Recognition, San Fransisco, June 1985 (N. Ayache and B. Faverjon).
8. Matching depth maps obtained by passive stereovision. *3rd Workshop on Computer Vision : Representation and Control*, Bellaire, Michigan (USA), pp. 197–204, October 1985, (N. Ayache and O. Faugeras et B. Faverjon).
9. Building visual maps by combining noisy stereo measurements. *Proc. of the IEEE International Conference on Robotics and Automation*, pp. 1433–1438, San Francisco, April 1986, (N. Ayache and O. Faugeras and B. Faverjon).
10. Maintaining representations of the environment of a mobile robot. (N. Ayache and O. Faugeras), dans *International Symposium on Robotics Research*, Santa Cruz (USA), August 1987, edité par MIT–Press.
11. Fast and reliable passive stereovision using three cameras. *IEEE Workshop on the Industrial Applications of Machine Vision and Machine Intelligence*, Tokyo, February 1987, (N. Ayache and F. Lustman).
12. Building, registrating and fusing noisy visual maps. *First International Conference on Computer Vision*, pp. 73–82, London, 1987, (N. Ayache and O. Faugeras).
13. Fast and reliable passive trinocular stereovision. *First International Conference on Computer Vision*, pp. 422–427, London, 1987 (N. Ayache and F. Lustman).
14. Trinocular stereovision, recent results. *Tenth International Joint Conference on Artificial Intelligence*, pp. 826–828, 1987, (N. Ayache and F. Lustman).
15. Building a consistent 3d representation of a mobile robot environment by combining multiple stereo views. *Tenth International Joint Conference on Artificial Intelligence*, pp. 808–810, Milano, 1987 (N. Ayache and O. Faugeras).
16. Visual navigation of a mobile robot. *IEEE International Workshop on Intelligent Robots and Systems (IROS'88)*, October 1988, Tokyo, Japan, (avec O.D. Faugeras, F. Lustman and Z. Zhang).
17. Visual navigation of a mobile robot : recent steps. *International Symposium and Exposition on Robots (ISER'88)*, November 1988, Sydney, Australia, (avec O.D. Faugeras, F. Lustman, and Z. Zhang).
18. Efficient depth estimation using trinocular stereovision. *SPIE Conference on Sensor Fusion : Spatial Reasoning and Scene Interpretation*, 1988, Cambridge, Massachusetts, (N. Ayache and C. Hansen and F. Lustman).
19. A preliminary investigation of the problem of determining ego- and object motions from stereo. *Proc. International Conference on Pattern Recognition*, 1988, 9th, Roma, Italy, (avec O.D. Faugeras, and Z. Zhang).
20. Rectification of images for binocular and trinocular stereovision. *Proc. International Conference on Pattern Recognition*, October 1988, 9th, Roma, Italy, (N. Ayache and C. Hansen).

21. Towards Real-Time Trinocular Stereovision *International Conference on Computer Vision*, 1988, Tampa, Florida (N. Ayache and C. Hansen and F. Lustman).
22. Analysis of a sequence of stereo scenes containing multiple moving objects using rigidity constaints. *International Conference on Computer Vision*, 1988, Tampa, Florida (avec Z. Zhang and O.D. Faugeras).
23. Depth and Motion Analysis : the machine being developed within Esprit project 940. *Proc. of IAPR Workshop on Computer Vision (Special Hardware and Industrial Applications)*, Ocober 1988, Tokyo, Japan, pp. 35-44 (avec O. Faugeras, R. Deriche,F. Lustman, E. Giuliano).
24. Final Steps Towards Real-Time Trinocular Stereovision, *First European Conference on Computer Vision*, Antibes, 1990. Version complète dans rapport de recherche Inria No 1284, 29 pages, 1990 (N. Ayache and G. Randall, S. Foret).
25. Building highly structured volume representations in 3d medical images. In *Computer Aided Radiology*, 1989. Berlin, West-Germany (N. Ayache and J.D. Boissonnat, E. Brunet, L. Cohen, J.P. Chièze, B.Geiger, O. Monga, J.M. Rocchisani, and P. Sander)
26. Building 3D Edge Lines Tracked in an Image Sequence, in *Intelligent Autonomous Systems-2 Conference*, December 1989, Amsterdam, The Netherlands (N. Ayache and T. Skordas, P. Puget and R. Zigmann).
27. Three-dimensional Fusion from a Monocular Sequence of Images, *Nato Advanced research Workshop on Multisensor Fusion for computer Vision,* Grenoble, June 1989 (avec J.L. Jezouin).
28. Three-dimensional Reconstruction from a Monocular Sequence of Images, *Int. Conf. on Computer Vision, Osaka*, Decembre 1990 (avec J.L. Jezouin).
29. Modeling uncertainty for estimating local surface geometry BRA Workshop (Heracklion, Grèce), conférence invitée, 1990. (O. Monga, N. Ayache and P. Sander).
30. Analysis of time sequences of ultrasound images, In 1st European conference on biomedical engineering, Nice, 1991. (avec I. Herlin).
31. Topological segmentation of discrete surfaces, IEEE. Conf. on Computer Vision and Pattern Analysis, CVPR'91, Hawai, USA, 1991 (avec G. Malandain and G. Bertrand).
32. Introducing deformable surfaces to segment 3D images and infer differential structures. IEEE. Conf. on Computer Vision and Pattern Analysis, CVPR'91, Hawai, USA, 1991 (avec I. and L. Cohen).
33. Using Uncertainty to link edge detection and local surface modelling, *12th Int. Conf. on Information Processing in Medical Images*, Lecture Notes in Computer Science, Vol 511, Springer-Verlag, 1991.. (O. Monga, N. Ayache and P. Sander).
34. From voxel to curvature and surface features. IEEE. Conf. on Computer Vision and Pattern Analysis, CVPR'91, Hawai, USA, 1991 (O. Monga, N. Ayache and P. Sander).
35. Using Surface Curvatures for 3D image Registration, in 11th Conf. on Computer Applications in Radiology, Baltimore, USA, 1992. (S. Benayoun, O. monga, A. Guéziec, N. Ayache).
36. Tracking Points on Deformable Objects Using Curvature Information. 2nd European Conference on Computer Vision (ECCV 92), pp 458-466, may 1992 (I. Cohen, N. Ayache and P. Sulger).
37. Using deformable surfaces to segment 3D images and infer differential structures. 2nd European Conference on Computer Vision (ECCV 92), pp 648-652, may 1992, (I. Cohen, L.D. Cohen and N. Ayache).
38. Smoothing and Matching of 3D Space Curves. 2nd European Conference on Computer Vision (ECCV 92), may 1992 (A. Guéziec and N. Ayache).
39. Features Extraction and Analysis Methods for Sequences of Ultrasound Images. 2nd European Conference on Computer Vision (ECCV 92), mai 1992 (I.L. Herlin and N. Ayache).
40. Large Deformable Splines, Crest Lines and Matching. SPIE'93, Geometric Methods in Computer Vision II, vol. 2031-38 pp 316-327, july 1993, (A. Guéziec and N. Ayache)
41. Fast Segmentation, Tracking, and Analysis of Deformable Objects. 4th International Conference on Computer Vision (ICCV 93), may 1993. (C. Nastar and N. Ayache)
42. Non-Rigid Motion Analysis in Medical Images : a Physically Based Approach. 13th International conference on Information Processing in Medical Imaging (IPMI'93), june 1993. (C. Nastar and N. Ayache)
43. A Physically Based Analysis of Deformations in 3D Images. SPIE'93, Geometric Methods in Computer Vision II, Vol 2031, pp. 182–192, July 1993. (C. Nastar and N. Ayache).

44. Classification of nonrigid motion in 3D images using Phusics-Based Vibration Analysis, in IEEE Workshop on Biomedical Image Analysis, WBIA'94, Seattle, USA, Juin 1994. (C. Nastar and N. Ayache).
45. Spatio-temporal analysis of nonrigid motion from 4D data, in in IEEE Workshop on non rigid and articulated objects, Austin, Texas, Nov. 1994. (C. Nastar and N. Ayache).
46. Time Representation of Defromations : Combining Vibration Modes and Fourier Analysis, Object Representation in Computer Vision, Internation NSF-ARPA Workshop, New-York, USA, Lecture Notes in Computer Science, No 994, Springer-Verlag, Dec. 1994. (C. Nastar and N. Ayache).
47. An O(n2) algorithm for 3D substructure matching of proteins, in 1st IEEE international workshop on shape and pattern matching in computational biology, Juin 1994. (X. Pennec and N. Ayache).
48. Rigid and affine registration of smooth surfaces using differential properties. 3rd European Conference on Computer Vision, vol 2, pp 397-406, may 1994 (J. Feldmar and N. Ayache).
49. Locally Affine Registration of Free-Form Surfaces. Conference on Computer Vision and Pattern Recognition (CVPR 94), june 1994. (J. Feldmar and N. Ayache).
50. Registration of a Curve on a Surface Using Differential Properties. 3rd European Conference on Computer Vision (ECCV 94), vol 2, pp 187-192, may 1994. (A. Gourdon and N. Ayache)
51. Non-Rigid Registration for Building 3D Anatomical Atlases. 12th International Conference on Pattern Recognition (ICPR 94), octobre 1994. (G. Subsol, J.P. Thirion and N. Ayache)
52. Steps Towards Automatic Building of Anatomical Atlases. International Conference on Visualization and Biomedical Computing (VBC 94), october 1994. (G. Subsol, J.P. Thirion and N. Ayache)
53. Fitting of iso-surfaces using superquadrics and Free-Form deformations, in 12th International Conference on Pattern Recognition (ICPR 94), octobre 1994, p. 79–83. (E. Bardinet, L. Cohen and N. Ayache)
54. Superquadrics and free-form deformations : a global model to fit and track 3d medical data. In N. Ayache, editor, *First international conference on computer vision, virtual reality and robotics in medicine, CVRMed'95*, Nice, France, 1995. Springer-Verlag. Lecture Notes in Computer Science. (E. Bardinet, L. Cohen, and N. Ayache)
55. Fitting of iso-surfaces using superquadrics and free-form deformations. In *IEEE Workshop on Biomedical Images Analysis (WBIA'94)*, Seattle, USA, juin 1994. (E. Bardinet, L.D. Cohen, and N. Ayache)
56. Tracking 3D medical data with a parametric deformable model, in IEEE Symposium on Computer Vision, Coral Gables, Florida, 1995. (E. Bardinet L. Cohen, and N. Ayache).
57. Dense non-rigid motion estimation in sequences of 3d images using differential constraints. In N. Ayache, editor, *First international conference on computer vision, virtual reality and robotics in medicine, CVRMed'95*, Nice, France, 1995. Springer-Verlag. Lecture Notes in Computer Science. (S. Benayoun, C. Nastar, and N. Ayache)
58. A new framework to fuse stereo images with volumetric medical images. In N. Ayache, editor, *First International conference on computer vision, virtual reality and robotics in medicine, CVRMed'95*, Nice, France, 1995. Springer-Verlag. Lecture Notes in Computer Science. (F. Betting, J. Feldmar, N. Ayache, and F. Devernay)
59. Automatic retrieval of anatomical structures in 3d medical images. In N. Ayache, editor, *First international conference on computer vision, virtual reality and robotics in medicine, CVRMed'95*, Nice, France, 1995. Springer-Verlag. Lecture Notes in Computer Science. (J. Declerck, G. Subsol, J.P. Thirion, and N. Ayache).
60. A General Scheme for Automatically Building 3D Morphometric Anatomical Atlases : application to a Skull Atlas, in Proceedings of the Conference on Medical Robotics and Computer Assisted Surgery (MRCAS'95), Baltimore, novembre 1995. (G. Subsol, J. Thirion, N. Ayache).
61. Geometric and Physical Representations for a Simulator of Hepatic Surgery, in Medecine Meets Virtual Reality, Studies in Health Technology and Informatics, IOS Press, Amsterdam, San Diego, USA, janvier 1996. (S. Cotin, H. Delingette, M. Bro-Nielsen, J.-M. Clement, J. Marescaux, N. Ayache).
62. Volumetric Deformable Models for Simulation of Laparoscopic Surgery. *Proceedings of the International Symposium on Computer and Communication Systems for Image Guided Diagnosis and Therapy, Computer Assisted Radiology (CAR'96)*, Elsevier, Vol. 1124, 1996. (S. Cotin and H. Delingette and J.-M. Clement and V. Tassetti and J. Marescaux and N. Ayache),
63. Application of an automatically built 3D morphometric brain atlas : Study of cerebral ventricle shape. International Conference on Visualization and Biomedical Computing (VBC 96), October 1996, Lecture Notes in Computer Science, Vol 1131, Springer Verlag. (G. Subsol, J.P. Thirion and N. Ayache)

64. Bias Field Correction of Breast MR Images, International Conference on Visualization and Biomedical Computing (VBC 96), October 1996, Lecture Notes in Computer Science, Vol 1131, Springer Verlag. (S. Gilles, M. Brady, J. Declerck, J.P. Thirion and N. Ayache).
65. Real time volumetric deformable models for surgery simulation, International Conference on Visualization and Biomedical Computing (VBC 96), October 1996, Lecture Notes in Computer Science, Vol 1131, Springer Verlag. (S. Cotin, H. Delingette and N. Ayache).
66. Matching 3D MR Angiography Data and 2D X-ray Angiograms *CVRMed-MRCAS'97* Springer, Lecture Notes in Computer Science 1205, pp. 129–138, 1997. (Feldmar, J. and Malandain, G. and Ayache, N. and Fernández-Vidal, S. and Maurincomme, E. and Trousset, Y.)
67. Directional Anisotropic Diffusion Applied to Segmentation Vessels in 3D Images. *Scale-Space Theory in Computer Vision (Scale-Space'97)*. Springer, Lecture Notes in Computer Science 1252, Utrecht, The Netherlands,pp. 345–348, 1997. (Krissian, K. and Malandain, G. and Ayache, N)
68. SPECT memory activation studies thanks to non-rigid automated 3D image registration. *CVRMed-MRCAS'97*. Springer, Lecture Notes in Computer Science 1205, pp. 487–490, Grenoble, France, 1997. (Migneco, O. and Thirion, J.-P. and Benoit, M. and Malandain, G. and Robert, P. and Ayache, N. and Darcourt, J.).
69. Definition of a 4D continuous polar transformation for the tracking and the analysis of LV motion. *Computer Vision, Virtual Reality and Robotics in Medicine II - Medical Robotics and Computer Assisted Surgery III*, pp. 33-42, Lecture Notes in Computer Science, 1205, 1997. (Declerck, J. and Feldmar, J. and Ayache, N).
70. Tracking and analysis of left ventricular motion with 4D planispheric transformations. *Medical and Biological Engineering and Computing*, Vol. 35, 1997. (Declerck, J. and Feldmar, J. and Ayache, N).
71. Definition of a 4D continuous polar transformation for the tracking and the analysis of LV motion, in *Computer Vision, Virtual Reality and Robotics in Medicine II - Medical Robotics and Computer Assisted Surgery III*, pages 33–42, Lecture Notes in Computer Science, (1205),1997. (Declerck, J. and Feldmar, J. and Ayache, N).
72. Liver Segmentation in Contrast Enhanced Helical CT-Scans. *World Congress on Medical Physics and Biomedical Engineering*, Nice, France, 1997. (Montagnat, J. and Delingette, H. and Ayache, N. and Clément, J.M. and Roy, C. and Russier, Y. and Tassetti, V. and Marescaux, J.).
73. Directional Anisotropic Diffusion applied to segmentation of vessels in 3D images. *First Conference on Scale-Space Theory in Computer Vision.* Utrecht, the Netherlands, 1997. (K. Krissian and G. Malandain and N. Ayache).
74. Automatic Segmentation of Portal Vein in CT-Scans of the Liver, *World Congress on Medical Physics and Biomedical Engineering, NICE97*, 35 :2,1997. (L. Soler and G. Malandain and H. Delingette and J. Montagnat and N. Ayache and J.M. Clément and C. Roy and Y. Russier and V. Tassetti and J. Marescaux).
75. Surgery simulation with visual and haptic feedback, *Proceedings of the Eighth International Symposium of Robotics Research*, pp.311–316, Springer, Japon, 1997. (N. Ayache and S. Cotin and H. Delingette).
76. Medical Image Analysis and Simulation, *Proceedings of ASIAN'97*,Plenary Talk, Kathmandou, Nepal. 1997. (N. Ayache)
77. Matching 3D MR Angiography Data and 2D X-ray Angiograms, in *CVRMed-MRCAS'97*, pages 129–138, Springer, LNCS 1205, 1997. (Feldmar, J. and Malandain, G. and Ayache, N. and Fernández-Vidal, S. and Maurincomme, E. and Trousset, Y.)
78. SPECT memory activation studies thanks to non-rigid automated 3D image registration, in *"CVRMed-MRCAS'97"*, pages 487–490, Springer, LNCS 1205, 1997. (Migneco, O. and Thirion, J.-P. and Benoit, M. and Malandain, G. and Robert, P. and Ayache, N. and Darcourt, J.).
79. Liver Segmentation in Contrast Enhanced Helical CT-Scans, in *World Congress on Medical Physics and Biomedical Engineering*, 1997. (Montagnat, J. and Delingette, H. and Ayache, N. and Clément, J.M. and Roy, C. and Russier, Y. and Tassetti, V. and Marescaux, J.)
80. Medical image analysis : a challenge for computer vision research. In *Int. Conf. on Pattern Recognition, ICPR'98*, pages 1255–1256, Brisbane, Australie, August 1998. IEEE. (Nicholas Ayache).
81. Model-based multiscale detection of 3d vessels. In B. Vemuri, editor, *Proc. of Worshop on Biomedical Image Analysis WBIA'98*, pages 202–208, Santa Barbara, 1998. (K. Krissian, G Malandain, N. Ayache, R. Vaillant, and Y. Trousset.)

82. The correlation ratio as a new similarity measure for multimodal image registration. In *Proc. of First Int. Conf. on Medical Image Computing and Computer-Assisted Intervention (MICCAI'98)*, number 1496 in LNCS, pages 1115–1124, Cambridge, USA, October 1998. Springer Verlag. (A. Roche, G. Malandain, X. Pennec, and N. Ayache).

83. Efficient linear elastic models of soft tissues for real time surgery simulation. In *Medecine Meets Virtual Reality VII*, Interactive Technology and the New Paradigm for He althcare, pages 139–151. IOS Press, January 1999. (H. Delingette, S. Cotin, and N. Ayache).

84. A hybrid elastic model allowing real-time cutting deformations and force feedback for surgery training and simulation. In N. Thalmann and D. Thalmann, editors, *Computer Animation (Computer Animation'99)*, pages 70–81. IEEE Computer Society, May 1999. (H. Delingette, S. Cotin, and N. Ayache).

85. Understanding the "demon's algorithm" : 3D non-rigid registration by gradient descent. In C. Taylor and A. Colchester, editors, *Proc. of 2nd Int. Conf. on Medical Image Computing and Computer-Assisted Intervention (MICCAI'99)*, number 1679 in LNCS, pages 597–605, Cambridge, UK, September 1999. Springer Verlag. (X. Pennec, P. Cachier, and N. Ayache).

86. Towards a Better Comprehension of Similarity Measures used in Medical Image Registration. In C. Taylor and A. Colchester, editors, *Proc. of 2nd Int. Conf. on Medical Image Computing and Computer-Assisted Intervention (MICCAI'99)*, number 1679 in LNCS, pages 555–566, Cambridge, UK, September 1999. Springer Verlag. (A. Roche, G. Malandain, N. Ayache, and S. Prima.)

87. Automatic Detection and Segmentation of Evolving Processes in 3D Medical Images : Application to Multiple Sclerosis. In A. Kuba, M. Sámal, and A. Todd-Pokropek, editors, *Information Processing in Medical Imaging, IPMI'99*, LNCS, pages 154–167, Visegrád, Hungary, June 1999. Springer. Electronic version : http ://link.springer.de/link/service/series/0558/bibs/1613/16130154.htm. (D. Rey, G. Subsol, H. Delingette, and N. Ayache.)

88. Use of a 4-D planispheric transformation for the tracking and the Analysis of LV Motion with tagged MR Images *Spie Medical Imaging*, Vol 3660, 1999. (J. Declerck, N. Ayache and E. McVeigh).

89. Using Continuum Mechanics Operators for detection and Quantification of Evolving Processes in 3D Medical Images. In *EUROMECH'99*, pages 185–188, Warsaw, Poland, May 1999. IPPT PAN. (D. Rey, G. Subsol, H. Delingette, and N. Ayache.)

90. Real-Time Large Displacement Elasticity for Surgery Simulation : Non-Linear Tensor-Mass Model, *Third International Conference on Medical Image Computing and Computer Assisted Intervention : MICCAI'00*, Lecture Notes in Computer Science, pages 643–652, 2000. (G. Picinbono, H.Delingette and N. Ayache).

91. Anisotropic Elasticity and Force Extrapolation to Improve Realism of Surgery Simulation. In *ICRA'2000 : IEEE International Conference Robotics and Automation*, 596–602, San Francisco USA, April 2000. (G. Picinbono, J.-C. Lombardo, H. Delingette and N. Ayache). **Prize of the best (ex-aequo) article of the conference** among 600 articles.

92. Surface Simplex Meshes for 3D Medical Image Segmentation. In *ICRA'2000 : IEEE International Conference Robotics and Automation*, San Francisco USA, April 2000. (J. Montagnat, H. Delingette, N. Scapel and N. Ayache).

93. Fusion of histological sections and MR images : towards the construction of an atlas of the human basal ganglia. In *Fourth International Conference on Medical Image Computing and Computer-Assisted Intervention, MICCAI'2001*, Lecture Notes in Computer Science, Springer, Utrecht, Netherlands, October 2001. (S. Ourselin, E. Bardinet, D. Dormont, G. Malandain, A. Roche, N. Ayache, D. Tande, K. Parain, and J. Yelnik).

94. Maximum Likelihood Estimation of the Bias Field in MR Brain Images : Investigating Different Modelings of the Imaging Process. In *Fourth International Conference on Medical Image Computing and Computer-Assisted Intervention, MICCAI'2001*, Lecture Notes in Computer Science, Springer, Utrecht, Netherlands, October 2001. (S. Prima, N. Ayache, Tom Barrick, and Neil Roberts).

95. Using SPM to Detect Evolving MS Lesions. In *Fourth International Conference on Medical Image Computing and Computer-Assisted Intervention, MICCAI'2001*, Lecture Notes in Computer Science, Springer, Utrecht, Netherlands, October 2001. (D. Rey, J. Stoeckel, G. Malandain, and N. Ayache).

96. A posteriori validation of pre-operative planning and functional neurosurgery by quantification of brain pneumocephalus. In *Fifth International Conference on Medical Image Computing and Computer-Assisted Intervention, MICCAI'2002*, Lecture Notes in Computer Science (LNCS 2489), Springer, Tokyo, Japan, pages 323-330, 2002. (E. Bardinet, P. Cathier, A. Roche, N Ayache and D. Dormont).

97. Statistical Analysis of Longitudinal MRI data : Applications for detection of disease activity in MS. In *Fifth International Conference on Medical Image Computing and Computer-Assisted Intervention, MICCAI'2002*, Lecture Notes in Computer Science (LNCS 2489), pages 363-371, Springer, Tokyo, Japan, 2002. (S. Prima, N Ayache, et al. and Louis Collins).

98. Improved detection sensitivity in functional MRI data using a brain parcelling technique. In *Fifth International Conference on Medical Image Computing and Computer-Assisted Intervention, MICCAI'2002*, Lecture Notes in Computer Science (LNCS 2489), Springer, Tokyo, Japan, pages 467-474, 2002. (G. Flandin, F. Kherif, X. Pennec, G. Malandain, N Ayache, and JB. Poline).

99. Co-Registration of Histological, Optical and MR Data of the Human Brain. In *Fifth International Conference on Medical Image Computing and Computer-Assisted Intervention, MICCAI'2002*, Lecture Notes in Computer Science (LNCS 2489), Springer, Tokyo, Japan, pages 548-555, 2002. (E. Bardinet, S. Ourselin, D. Dormont, G. Malandain, D. Tande, K. Parain, N Ayache and J Yelnik).

100. Biomedical Model Construction from Different Modalities : Application to Cardiac Images In *Fifth International Conference on Medical Image Computing and Computer-Assisted Intervention, MICCAI'2002*, Lecture Notes in Computer Science (LNCS 2489), Springer, Tokyo, Japan, 2002. (M Sermesant, C. Forest, X. Pennec, H. Delingette and N Ayache).

101. Cutting Simulation of Volumetric Manifolds In *Fifth International Conference on Medical Image Computing and Computer-Assisted Intervention, MICCAI'2002*, Lecture Notes in Computer Science (LNCS 2489), Springer, Tokyo, Japan, pages 235-244, 2002. (C. Forest, H. Delingette and N Ayache).

102. Three dimensional functional cartography of the human basal ganglia by registration of optical and histological serial sections. In IEEE International Symposium on Biomedical Imaging, Washington, USA, pages 329-332, 2002. (Eric Bardinet, Sébastien Ourselin, Grégoire Malandain, Dominique Tandé, Karine Parain, Nicholas Ayache, and Jérome Yelnik.)

103. Automatic trinocular 3D reconstruction of coronary artery centerlines from rotational X-ray angiography. In Computer Assisted Radiology and Surgery 2002 Proceedings, Paris, pages 1073-1078, June 2002. Springer Publishers, Heidelberg. Note : International Symposium on Cardiovascular Imaging - Invasive Coronary and Vascular Imaging. (Christophe Blondel, Régis Vaillant, Frédéric Devernay, Grégoire Malandain, and Nicholas Ayache.)

104. Parcellation of brain images with anatomical and functional constraints for fMRI data analysis. In IEEE International Symposium on Biomedical Imaging, Washington, USA, pages 907-910, 2002. (Guillaume Flandin, Ferath Kherif, Xavier Pennec, Denis Riviere, Nicholas Ayache, and Jean-Baptiste Poline.

105. Cutting Simulation of Manifold Volumetric Meshes. In Modelling & Simulation for Computer-aided Medicine and Surgery (MS4CMS'02), 2002. (Clément Forest, Hervé Delingette, and Nicholas Ayache.)

106. Removing Tetrahedra from a Manifold Mesh. In Computer Animation (CA'02), Geneva, Switzerland, pages 225-229, June 2002. IEEE Computer Society. (Clément Forest, Hervé Delingette, and Nicholas Ayache.)

107. Texture based MRI segmentation with a two-stage hybrid neural classifier. In World Congress on Computational Intelligence / INNS-IEEE International Joint Conference on Neural Networks WCCI-IJCNN'02, 2002. (A. Pitiot, A. Toga, N. Ayache, and P. Thompson.)

108. Progress towards an Electro-Mechanical Model of the Heart for Cardiac Image Analysis. In IEEE International Symposium on Biomedical Imaging (ISBI'02), pages 10-14, 2002. (M. Sermesant, Y. Coudiere, H. Delingette, and N. Ayache.)

109. Progress Towards Model-Based Estimation of the Cardiac Electromechanical Activity from ECG Signals and 4D Images. In Marc Thiriet, editor, Modelling & Simulation for Computer-aided Medicine and Surgery (MS4CMS'02), volume 12 of ESAIM : PROC, pages 153-162, 2002. European Series in Applied and Industrial Mathematics. (M. Sermesant, Y. Coudiere, H. Delingette, N. Ayache, J. Sainte-Marie, D. Chapelle, F. Clément, and M. Sorine.)

110. Polyrigid and Polyaffine Transformations : A New Class of Diffeomorphisms for Locally Rigid or Affine Registration. In Randy E. Ellis and Terry M. Peters, editors, Proc. of MICCAI'03, Part II, volume 2879 of LNCS, Montreal, pages 829-837, November 2003. Springer Verlag. (Vincent Arsigny, Xavier Pennec, and Nicholas Ayache.)

111. Correlating Brain Deformation to Anatomical Features : A MR Study of Brain Deformation during Functional Stereotactic Procedures. In American Society of Neuroradiology (ASNR), 2003. (E. Bardinet, D. Dormont, O. Clatz, C. Menuel, D. Galanaud, P. Cathier, N. Ayache, and J. Chiras.)

112. 4D deformation field of coronary arteries from monoplane rotational X-ray angiography. In Computer Assisted Radiology and Surgery 2003 Proceedings, volume 1256 of ICS, Londres, United Kingdom, June 2003. Elsevier. (C. Blondel, G. Malandain, R. Vaillant, and N. Ayache.)

113. 4D Tomographic Representation of Coronary Arteries From One Rotational X-ray Sequence. In Randy E. Ellis and Terry M. Peters, editors, Medical image computing and computer-assisted intervention (MICCAI 2003), volume 2878 of LNCS, Montreal, Canada, pages 416-423, November 2003. Springer Verlag. (C. Blondel, G. Malandain, R. Vaillant, F. Devernay, E. Coste-Maniere, and N. Ayache.)

114. 3D tomographic reconstruction of coronary arteries using a precomputed 4D motion field. In Yves Bizais, editor, Proceedings of the VIIth International Conference on Fully 3D Reconstruction In Radiology and Nuclear Medicine, Saint-Malo, France, July 2003. (C. Blondel, R. Vaillant, G. Malandain, and N. Ayache.)

115. New Vector Field Regularization Techniques for Nonrigid Registration. In J.C. Gee, J.B. A. Maintz, and M. W. Vannier, editors, Second International Workshop on Biomedical Image Registration WBIR'03, volume 2717 of Lecture Notes in Computer Science, Philadelphia, PA, USA, pages 1-10, 2003. Springer-Verlag. (P. Cathier and N. Ayache.)

116. Patient Specific Biomechanical Model of the Brain : Application to Parkinson's disease procedure.. In N. Ayache and H. Delingette, editors, International Symposium on Surgery Simulation and Soft Tissue Modeling (IS4TM'03), volume 2673 of Lecture Notes in Computer Science, Juan-les-Pins, France, pages 321-331, 2003. INRIA Sophia Antipolis, Springer-Verlag. (O. Clatz, H. Delingette, E. Bardinet, D. Dormont, and N. Ayache.)

117. Robust segmentation of the thalamus using Kohonen algorithm from diffusion tensor image. In Proc of Int. Soc. for Magnetic Resonance in Medicine (ISMRM) 11th Scientific meeting, Toronto, 2003. (J. Dauguet, V. Frouin, Y. Cointepas, D. Hervé, N. Ayache, and P. Hantraye.)

118. Generalized Image Models and Their Application as Statistical Models of Images. In Randy E. Ellis and Terry M. Peters, editors, Proc. of MICCAI'03, volume 2879 of Lecture Notes in Computer Science, Montreal, Canada, pages 150-157, November 2003. Springer. (M. A. Gonzalez Ballester, X. Pennec, and N. Ayache.)

119. 2D to 3D Refinement of Post Mortem Optical and MRI Co-Registration. In Randy E. Ellis and Terry M. Peters, editors, Medical image computing and computer-assisted intervention (MICCAI 2003), volume 2879 of LNCS, Montreal, Canada, pages 935-944, November 2003. Springer Verlag. (C. Kenwright, E. Bardinet, S.A. Hojjat, G. Malandain, N. Ayache, and A.C.F. Colchester.)

120. First validation experiments of a 3-D automatic algorithm based on a vector field analysis to detect and quantify volume variation of multiple sclerosis lesions. In 19th Congress of the European Committee for Treatment and Research in Multiple Sclerosis (ECTRIMS), Milan, Italy, September 2003. Note : Multiple Sclerosis, P455, pp S112. (C. Lebrun, D. Rey, S. Chanalet, N. Ayache, M. Chatel, and G. Malandain.

121. Multiscale Feature Detector for Morphological Analysis of the Brain. In Randy E. Ellis and Terry M. Peters, editors, Medical Image Computing and Computer-Assisted Intervention'03, volume 2879 of Lecture Notes in Computer Science, Montreal, Canada, pages 738-745, November 2003. Springer. (M. G. Linguraru, M. A. Gonzalez Ballester, and N. Ayache.)

122. Augmented Reality guided radio-frequency tumor ablation. In Proceedings of Augmented and Virtual Rality Workshop (AVIR03), Geneve, pages 34-35, 2003. Keyword(s) : 3D/2D registration, Augmented reality, validation. (S. Nicolau, A. Garcia, X. Pennec, L. Soler, and N. Ayache)

123. Evaluation of a New 3D/2D Registration Criterion for Liver Radio-Frequencies Guided by Augmented Reality. In N. Ayache and H. Delingette, editors, International Symposium on Surgery Simulation and Soft Tissue Modeling (IS4TM'03), volume 2673 of Lecture Notes in Computer Science, Juan-les-Pins, France, pages 270-283, 2003. INRIA Sophia Antipolis, Springer-Verlag. Keyword(s) : 3D/2D registration, Augmented reality, validation. (S. Nicolau, X. Pennec, L. Soler, and N. Ayache.)

124. Expert-Knowledge-Guided Segmentation System for Brain MRI. In Randy E. Ellis and Terry M. Peters, editors, Medical Image Computing and Computer-Assisted Intervention MICCAI'03, volume 2879 of LNCS, Montreal, pages 644-652, November 2003. Springer Verlag. (A. Pitiot, H. Delingette, N. Ayache, and P.M. Thompson.)

125. A Parallel Implementation of Non-Rigid Registration Using a Volumetric Biomechanical Model. In J.C. Gee, J.B. A. Maintz, and M. W. Vannier, editors, Second International Workshop on Biomedical Image Registration WBIR'03, volume 2717 of Lecture Notes in Computer Science, Philadelphia, PA, USA, pages 398-407, 2003. Springer-Verlag. (M. Sermesant, O. Clatz, Z. Li, S. Lantéri, H. Delingette, and N. Ayache.)

126. Preliminary validation using in vivo measures of a macroscopic electrical model of the heart. In N. Ayache and H. Delingette, editors, International Symposium on Surgery Simulation and Soft Tissue Modeling (IS4TM'03),

volume 2673 of Lecture Notes in Computer Science, Juan-les-Pins, France, pages 230-243, 2003. INRIA Sophia Antipolis, Springer-Verlag. (M. Sermesant, O. Faris, F. Evans, E. McVeigh, Y. Coudiere, H. Delingette, and N. Ayache.)

127. Grid Enabled Non-Rigid Registration with a Dense Transformation and A Priori Information. In Randy E. Ellis and Terry M. Peters, editors, Proc. of MICCAI'03, Part II, volume 2879 of LNCS, Montreal, pages 804-811, November 2003. Springer Verlag. (Radu Stefanescu, Xavier Pennec, and Nicholas Ayache.)
128. In Silico Tumor Growth : Application to Glioblastomas.. In C. Barillot, D.R. Haynor, and P. Hellier, editors, Proc. of the 7th Int. Conf on Medical Image Computing and Computer-Assisted Intervention - MICCAI 2004 (2), volume 3217 of LNCS, Saint-Malo, France, pages 337-345, September 2004. Springer Verlag. (O. Clatz, P.Y. Bondiau, H.Delingette, G. Malandain, M. Sermesant, S. K. Warfield, and N. Ayache.)
129. Hierarchical Segmentation of Multiple Sclerosis Lesions in Multi-Sequence MRI. In International Symposium on Biomedical Imaging : From Nano to Macro (ISBI'04), Arlington, VA, USA, April 2004. (G Dugas-Phocion, M A Gonzalez Ballester, C Lebrun, S Chanalet, C Bensa, G Malandain, and N Ayache.)
130. Improved EM-Based Tissue Segmentation and Partial Volume Effect Quantification in Multi-Sequence Brain MRI. In Proc. of MICCAI'04, Lecture Notes in Computer Science, Saint-Malo, France, September 2004. Springer. (G Dugas-Phocion, M A Gonzalez Ballester, G Malandain, C Lebrun, and N Ayache.)
131. Surface Contact and Reaction Force Models for Laparoscopic Simulation. In International Symposium on Medical Simulation, Lecture Notes in Computer Science, LNCS 3078, pages 168–176, June 2004. (Clément Forest, Hervé Delingette, and Nicholas Ayache.)
132. Towards Optical Biopsies with an Integrated Fibered Confocal Fluorescence Microscope. In Christian Barillot, David Haynor, and Pierre Hellier, editors, Proc. of MICCAI'04, volume 3217 of LNCS, Saint-Malo, France, pages 761-768, September 2004. (G Le Goualher, A Perchant, M Genet, C Cave, B Viellerobe, F Berier, B Abrat, and N Ayache.)
133. An Accuracy Certified Augmented Reality System for Therapy Guidance. In Proc. of the 8th European Conference on Computer Vision (ECCV 04), Part III, volume LNCS 3023, Prague, pages 79-91, May 2004. (S Nicolau, X Pennec, L Soler, and N Ayache.)
134. An Augmented Reality & Virtuality Interface for a Puncture Guidance System : Design and Validation on an Abdominal Phantom. In Guang-Zhong Yang and Tianzi Jiang, editors, Proc of the Second Int. Workshop on Medical Imaging and Augmented Reality MIAR 2004, volume 3150 of LNCS, Beijing, China, pages 302-310, August 2004. Springer Verlag. (S Nicolau, J. Schmid, X Pennec, L. Soler, and N. Ayache.)
135. Measuring Blood Cells Velocity In Microvessels From a Single Image : Application To In Vivo and In Situ Confocal Microscopy. In ISBI'04, Arlington (USA), April 2004. (N. Savoire, G. Le Goualher, A. Perchant, F. Lacombe, G. Malandain, and N. Ayache.)
136. Virtual Reality and Augmented Reality in Digestive Surgery. In Proc. of IEEE International Symposium on Mixed and Augmented Reality (ISMAR'04), pages 278-279, November 2004. (L. Soler, S. Nicolau, J. Schmid, C. Koehl, J. Marescaux, X. Pennec, and N. Ayache.)
137. Non-Rigid Atlas to Subject Registration with Pathologies for Conformal Brain Radiotherapy. In C. Barillot, D.R. Haynor, and P. Hellier, editors, Proc. of the 7th Int. Conf on Medical Image Computing and Computer-Assisted Intervention - MICCAI 2004, volume 3216 of LNCS, Saint-Malo, France, pages 704-711, September 2004. Springer Verlag. (R. Stefanescu, O. Commowick, G. Malandain, P.-Y. Bondiau, N. Ayache, and X. Pennec.)
138. Automatic Classification of SPECT Images of Alzheimer's Disease Patients and Control Subjects. In Christian Barillot, David Haynor, and Pierre Hellier, editors, Proc. of MICCAI'04, volume 3217 of LNCS, Saint-Malo, France, pages 654-662, September 2004. Springer Verlag. (J. Stoeckel, N Ayache, G Malandain, P M. Koulibaly, K P. Ebmeier, and J Darcourt.)
139. Fast and Simple Calculus on Tensors in the Log-Euclidean Framework. In J. Duncan and G. Gerig, editors, Proceedings of the 8th Int. Conf. on Medical Image Computing and Computer-Assisted Intervention - MICCAI 2005, Part I, volume 3749 of LNCS, Palm Springs, CA, USA, October 26-29, pages 115-122, 2005. Springer Verlag. Vincent Arsigny, Pierre Fillard, Xavier Pennec, and Nicholas Ayache.
140. Retrospective cross-evaluation of an histological and deformable 3D atlas of the basal ganglia on series of Parkinsonian patients treated by deep brain stimulation (DBS). In J. Duncan and G. Gerig, editors, Proceedings of MICCAI'05, volume 3750 of LNCS, Palm Springs, California, pages 385-393, 2005. Eric Bardinet, Didier Dormont, Grégoire Malandain, Manik Bhattacharjee, Bernard Pidoux, Christian Saleh, Philippe Cornu, Nicholas Ayache, Yves Agid, and Jérome Yelnik.

141. Modélisation macroscopique de la croissance des tumeurs cérébrales.. In Congres Francais de Mécanique (CFM), Troyes, August 2005. O. Clatz, P.-Y. Bondiau, H. Delingette, and N. Ayache.
142. Hybrid Formulation of the Model-Based Non-Rigid Registration Problem to Improve Accuracy and Robustness. In J. Duncan and G. Gerig, editors, Proceedings of MICCAI'05, volume 3750 of LNCS, pages 295-302, October 2005. Olivier Clatz, Hervé Delingette, Ion-Florin Talos, Alexandra J. Golby, Nicholas Ayache, Ron Kikinis, Ferenc A. Jolesz, and Simon K. Warfield.
143. Incorporating Statistical Measures of Anatomical Variability in Atlas-to-Subject Registration for Conformal Brain Radiotherapy. In J. Duncan and G. Gerig, editors, Proceedings of the 8th Int. Conf. on Medical Image Computing and Computer-Assisted Intervention - MICCAI 2005, Part II, volume 3750 of LNCS, Palm Springs, CA, USA, October 26-29, pages 927-934, 2005. Springer Verlag. Olivier Commowick, Radu Stefanescu, Pierre Fillard, Vincent Arsigny, Nicholas Ayache, Xavier Pennec, and Grégoire Malandain.
144. Automatic segmentation of white matter lesions in multi-sequence MRI of relapsing-remitting multiple sclerosis patients. In 21th Congress of the European Committee for Treatment and Research in Multiple Sclerosis (ECTRIMS), Thessaloniki, Greece, September 2005. G. Dugas-Phocion, C. Lebrun, S. Chanalet, M. Chatel, N. Ayache, and G. Malandain.
145. A Riemannian Framework for the Processing of Tensor-Valued Images. In Ole Fogh Olsen, Luc Florak, and Arjan Kuijper, editors, Deep Structure, Singularities, and Computer Vision (DSSCV), number 3753 of LNCS, pages 112-123, June 2005. Springer Verlag.Pierre Fillard, Vincent Arsigny, Nicholas Ayache, and Xavier Pennec.
146. Extrapolation of Sparse Tensor Fields : Application to the Modeling of Brain Variability. In Gary Christensen and Milan Sonka, editors, Proc. of Information Processing in Medical Imaging 2005 (IPMI'05), volume 3565 of LNCS, Glenwood springs, Colorado, USA, pages 27-38, July 2005. Springer. Pierre Fillard, Vincent Arsigny, Xavier Pennec, Paul M. Thompson, and Nicholas Ayache.
147. On the Adequacy of Principal Factor Analysis for the Study of Shape Variability. In J.M. Fitzpatrick and J.M. Reinhardt, editors, SPIE Medical Imaging '05, volume 5747, pages 1392-1399, 2005. SPIE Publishing. M. A. Gonzalez Ballester, M.G. Linguraru, M. Reyes Aguirre, and N. Ayache.
148. Early diagnosis of human TSE by multimodality MRI : Spectroscopic detection of thalamic gliosis in a patient with FFI and normal FLAIR and diffusion-weighted imaging. In Proceedings of Prions 2005 : Between Fundamentals and Society's Needs, pages 176, 2005. S. Haik, D. Galanaud, B.A. Faucheux, N. Privat, I. Laffont-Proust, M.G. Linguraru, N. Ayache, J.J. Hauw, D. Dormont, and J.P. Brandel.
149. Early diagnosis of human TSE by multimodality MRI : Spectroscopic detection of thalamic gliosis in a patient with FFI and normal FLAIR and diffusion-weighted imaging. In II International Symposium on The New Prion Biology : Basic Science, Diagnosis and Therapy, Venice, Italy, April 2005. S. Haik, D. Galanaud, B.A. Faucheux, N. Privat, M.G. Linguraru, N. Ayache, J.J. Hauw, D. Dormont, and J.P. Brandel.
150. Non-Linear 2D and 3D Registration Using Block-Matching and B-Splines. In Bildverarbeitung fuer die Medizin 2005, Heidelberg, Germany, March 2005. Deutsches Krebsforschungszentrum. Heike Hufnagel, Xavier Pennec, Grégoire Malandain, Hans Handels, and Nicholas Ayache.
151. New Ratios for the Detection and Classification of CJD in Multisequence MRI of the Brain. In J. Duncan and G. Gerig, editors, Medical Image Computing and Computer-Assisted Intervention, MICCAI 2005, volume 3750 of LNCS, Palm Springs, USA, pages 492-499, 2005. Springer Verlag. M.G. Linguraru, N. Ayache, M.A. Gonzalez Ballester, E. Bardinet, D. Galanaud, S. Haik, B.A. Faucheux, P. Cozzone, D. Dormont, and J.P. Brandel.
152. Estimating Local Apparent Conductivity with a 2-D Electrophysiological Model of the Heart. In Proc. of Functional Imaging and Modeling of the Heart 2005 (FIMH'O5), volume 3504 of LNCS, pages 256-266, June 2005. Springer. Valérie Moreau-Villéger, Hervé Delingette, Maxime Sermesant, Hiroshi Ashikaga, Owen Faris, Elliot McVeigh, and Nicholas Ayache.
153. A complete Augmented Reality Guidance System for Liver Punctures : First Clinical Evaluation. In J. Duncan and G. Gerig, editors, Proceedings of the 8th Int. Conf. on Medical Image Computing and Computer-Assisted Intervention - MICCAI 2005, Part I, volume 3749 of LNCS, Palm Springs, CA, USA, October 26-29, pages 539-547, 2005. Springer Verlag. Stéphane Nicolau, Xavier Pennec, Luc Soler, and Nicholas Ayache.
154. Riemannian Elasticity : A statistical regularization framework for non-linear registration. In J. Duncan and G. Gerig, editors, Proceedings of the 8th Int. Conf. on Medical Image Computing and Computer-Assisted Intervention - MICCAI 2005, Part II, volume 3750 of LNCS, Palm Springs, CA, USA, October 26-29, pages 943-950, 2005. Springer Verlag. Xavier Pennec, Radu Stefanescu, Vincent Arsigny, Pierre Fillard, and Nicholas Ayache.

155. Respiratory Motion Compensation within Emission Tomographic Reconstruction. In 52nd Annual Meeting of the Society of Nuclear Medicine, Toronto, Canada, June 2005. Mauricio A. Reyes, Gregoire Malandain, Nicholas Ayache, Jacques Darcourt, and Pierre M. Koulibaly.

156. Mosaicing of Confocal Microscopic In Vivo Soft Tissue Video Sequences. In J. Duncan and G. Gerig, editors, Proceedings of the 8th Int. Conf. on Medical Image Computing and Computer-Assisted Intervention - MICCAI 2005, Part I, volume 3749 of LNCS, Palm Springs, CA, USA, October 26-29, pages 753-760, 2005. Tom Vercauteren, Aymeric Perchant, Xavier Pennec, and Nicholas Ayache.

157. Integrating Tactile and Force Feedback with Finite Element Models. In International Conference on Robotics and Automation (ICRA'05), Barcelona, April 2005. C. Wagner, O. Clatz, R. Feller, D. Perrin, H. Delingette, N. Ayache, and R. Howe.

158. A Log-Euclidean Framework for Statistics on Diffeomorphisms. In Proc. of the 9th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI'06), Part I, number 4190 of LNCS, pages 924-931, 2-4 October 2006. Vincent Arsigny, Olivier Commowick, Xavier Pennec, and Nicholas Ayache.

159. A Log-Euclidean Polyaffine Framework for Locally Rigid or Affine Registration. In J.P.W. Pluim, B. Likar, and F.A. Gerritsen, editors, Proceedings of the Third International Workshop on Biomedical Image Registration (WBIR'06), volume 4057 of LNCS, Utrecht, The Netherlands, pages 120-127, 9 - 11 July 2006. Springer Verlag. Vincent Arsigny, Olivier Commowick, Xavier Pennec, and Nicholas Ayache.

160. Statistics on Diffeomorphisms in A Log-Euclidean Framework. In X. Pennec and S. Joshi, editors, Proc. of the International Workshop on the Mathematical Foundations of Computational Anatomy (MFCA-2006), pages 16-17, 1st of October 2006. Vincent Arsigny, Olivier Commowick, Xavier Pennec, and Nicholas Ayache.

161. Processing and Mosaicing of Fibered Confocal Images. In MICCAI Workshop on Microscopic Image Analysis with Applications in Biology (MIAAB'06), October 2006. Note : Invited talk. Nicholas Ayache, Tom Vercauteren, Grégoire Malandain, Fabien Oberrietter, Nicolas Savoire, and Aymeric Perchant.

162. An interactive Intensity- and Feature-Based Non-Rigid Registration Framework for 3D Medical Images. In Proceedings of the Third IEEE International Symposium on Biomedical Imaging (ISBI 2006), Crystal Gateway Marriott, Arlington, Virginia, USA, pages 824-827, April 2006. Antoine Azar, Chenyang Xu, Xavier Pennec, and Nicholas Ayache.

163. A Novel Framework for the 3D Analysis of Spine Deformation Modes. In Research into Spinal Deformities, volume 123 of Studies in Health Technology and Informatics, pages 176-182, 2006. Jonathan Boisvert, Farida Cheriet, Xavier Pennec, Nicholas Ayache, and Hubert Labelle.

164. Assessment of Brace Local Action on Vertebrae Relative Poses. In Research into Spinal Deformities, volume 123 of Studies in Health Technology and Informatics, pages 372-378, 2006. Jonathan Boisvert, Farida Cheriet, Xavier Pennec, Nicholas Ayache, and Hubert Labelle.

165. 3D Anatomic Variability Assesment of the Scoliotic Spine Using Statistics on Lie Groups. In Proceedings of the Third IEEE International Symposium on Biomedical Imaging (ISBI 2006), Crystal Gateway Marriott, Arlington, Virginia, USA, pages 750-753, April 2006. IEEE. Jonathan Boisvert, Xavier Pennec, Nicholas Ayache, Hubert Labelle, and Farida Cheriet.

166. Principal Spine Shape Deformation Modes Using Riemannian Geometry and Articulated Models. In Proc of the IV Conference on Articulated Motion and Deformable Objects, Andratx, Mallorca, Spain, 11-14 July, LNCS, 2006. Springer. Note : **AMDO best paper award** 2006. Jonathan Boisvert, Xavier Pennec, Hubert Labelle, Farida Cheriet, and Nicholas Ayache.

167. An Efficient Locally Affine Framework for the Registration of Anatomical Structures. In Proceedings of the Third IEEE International Symposium on Biomedical Imaging (ISBI 2006), Crystal Gateway Marriott, Arlington, Virginia, USA, pages 478-481, April 2006. Olivier Commowick, Vincent Arsigny, Jimena Costa, Nicholas Ayache, and Grégoire Malandain.

168. Clinical DT-MRI estimation, smoothing and fiber tracking with log-Euclidean metrics. In Proceedings of the Third IEEE International Symposium on Biomedical Imaging (ISBI 2006), Crystal Gateway Marriott, Arlington, Virginia, USA, pages 786-789, April 2006. Pierre Fillard, Vincent Arsigny, Xavier Pennec, and Nicholas Ayache.

169. Extrapolating Tumor Invasion Margins for Physiologically Determined Radiotherapy Regions. In Proc. of the 9th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI'06), Part I, number 4190 of LNCS, pages 338-346, 2-4 October 2006. Ender Konukoglu, Olivier Clatz, Pierre-Yves Bondiau, Hervé Delingette, and Nicholas Ayache.

170. Towards a Statistical Atlas of Cardiac Fiber Structure. In Proc. of the 9th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI'06), Part I, number 4190 of LNCS, pages 297-304, 2-4 October 2006. Jean-Marc Peyrat, Maxime Sermesant, Hervé Delingette, Xavier Pennec, Chenyang Xu, Elliot McVeigh, and Nicholas Ayache.

171. Automatic Segmentation of the Bladder Using Deformable Models. In Proceedings of IEEE International Symposium on Biomedical Imaging : From Nano to Macro (ISBI'07), Metro Washington DC, USA, pages 904-907, 2007. Jimena Costa, Hervé Delingette, and Nicholas Ayache.

172. Automatic Segmentation of Bladder and Prostate Using Coupled 3D Deformable Models.. In Nicholas Ayache, Sébastien Ourselin, and Anthony Maeder, editors, Proc. Medical Image Computing and Computer Assisted Intervention (MICCAI'07), volume 4791 of LNCS, Brisbane, Australia, pages 252-260, October 2007. Springer. Jimena Costa, Hervé Delingette, Sébastien Novellas, and Nicholas Ayache.

173. CardiosSense3D : Patient-Specific Cardiac Simulation. In Proceedings of IEEE International Conference on Biomedical Imaging : From Nano to Macro (ISBI'07), Metro Washington DC, USA, pages 628-631, 12-15 April 2007. H. Delingette, M. Sermesant, J.-M. Peyrat, N. Ayache, K. Rhode, R. Razavi, E. McVeigh, D. Chapelle, J. Sainte-Marie, P. Moireau, M. Fernandez, J.-F. Gerbeau, K. Djabella, Q. Zhang, and M. Sorine.

174. Measuring Brain Variability via Sulcal Lines Registration : a Diffeomorphic Approach. In Nicholas Ayache, Sébastien Ourselin, and Anthony Maeder, editors, Proc. Medical Image Computing and Computer Assisted Intervention (MICCAI), volume 4791 of LNCS, Brisbane, Australia, pages 675-682, October 2007. Springer. Note : PMID : 18051117. Stanley Durrleman, Xavier Pennec, Alain Trouvé, and Nicholas Ayache.

175. Evaluating Brain Anatomical Correlations via Canonical Correlation Analysis of Sulcal Lines. In Proc. of MICCAI'07 Workshop on Statistical Registration : Pair-wise and Group-wise Alignment and Atlas Formation, Brisbane, Australia, 2007. P. Fillard, X. Pennec, P.M. Thompson, and N. Ayache.

176. Point-Based Statistical Shape Models with Probabilistic Correspondences and Affine EM-ICP. In Bildverarbeitung fuer die Medizin 2007, Informatik aktuell, March 2007. Springer. Note : Third prize in category best scientific work. Keyword(s) : statistical shape models, registration, EM-ICP, probabilistic correspondences. Heike Hufnagel, Xavier Pennec, Jan Ehrhardt, Heinz Handels, and Nicholas Ayache.

177. Shape Analysis Using a Point-Based Statistical Shape Model Built on Correspondence Probabilities. In Nicholas Ayache, Sébastien Ourselin, and Anthony Maeder, editors, Proc. Medical Image Computing and Computer Assisted Intervention (MICCAI'07), volume 4791 of LNCS, Brisbane, Australia, pages 959-967, October 2007. Springer. Note : PMID : 18051151. H. Hufnagel, X. Pennec, J. Ehrhardt, H. Handels, and N. Ayache.

178. Towards an Identification of Tumor Growth Parameters from Time Series of Images. In Nicholas Ayache, Sébastien Ourselin, and Anthony Maeder, editors, Proc. Medical Image Computing and Computer Assisted Intervention (MICCAI), volume 4791 of LNCS, Brisbane, Australia, pages 549-556, October 2007. Springer. E. Konukoglu, O.Clatz, Pierre-Yves Bondiau, Maxime Sermesant, H. Delingette, and N. Ayache.

179. A Recursive Anisotropic Fast Marching Approach to Reaction Diffusion Equation : Application to Tumor Growth Modeling. In Proceedings of the 20th International Conference on Information Processing in Medical Imaging (IPMI'07), volume 4584 of LNCS, pages 686-699, 2-6 July 2007. E. Konukoglu, M. Sermesant, O. Clatz, J.-M. Peyrat, H. Delingette, and N. Ayache.

180. Clinical Evaluation of a Respiratory Gated Guidance System for Liver Punctures. In Nicholas Ayache, Sébastien Ourselin, and Anthony J. Maeder, editors, Proc. Medical Image Computing and Computer Assisted Intervention (MICCAI'07), volume 4792 of Lecture Notes in Computer Science, Brisbane, Australia, pages 77-85, October 2007. Springer-Verlag. Note : PMID : 18044555. Stephane Nicolau, Xavier Pennec, Luc Soler, and Nicholas Ayache.

181. Region Tracking Algorithms on Laser Scanning Devices Applied to Cell Traffic Analysis. In Proceedings IEEE International Symposium on Biomedical Imaging : From Nano to Macro (ISBI'07), Metro Washington DC, USA, pages 260-263, April 2007. Aymeric Perchant, Tom Vercauteren, Fabien Oberrietter, Nicolas Savoire, and Nicholas Ayache.

182. Statistical Comparison of Cardiac Fibre Architectures. In Proceedings of Functional Imaging and Modeling of the Heart 2007 (FIMH'07), volume 4466 of LNCS, pages 413-423, 7-9 June 2007. Jean-Marc Peyrat, Maxime Sermesant, Hervé Delingette, Xavier Pennec, Chenyang Xu, Elliot McVeigh, and Nicholas Ayache.

183. Statistical Shape Analysis via Principal Factor Analysis. In Proceedings of IEEE International Symposium on Biomedical Imaging, Metro Washington DC, USA, pages 1216-1219, 2007. M. Reyes Aguirre, M.G. Linguraru, K. Marias, N. Ayache, L.-P. Nolte, and M. A. Gonzalez Ballester.

184. An anisotropic multi-front fast marching method for real-time simulation of cardiac electrophysiology. In Proceedings of Functional Imaging and Modeling of the Heart 2007 (FIMH'07), volume 4466 of LNCS, pages 160-169, 7-9 June 2007. M. Sermesant, E. Konukoglu, H. Delingette, Y. Coudiere, P. Chinchaptanam, K.S. Rhode, R. Ra zavi, and N. Ayache.

185. A comparative study of skull stripping methods in relapsing-remitting multiple sclerosis : Emergence of a new automatic segmentation algorithm. In Congress of the European Committee for Treatment and Research in Multiple Sclerosis (ECTRIMS), Prague, Czech Republic, October 2007. Jean-Christophe Souplet, Christine Lebrun, Pierre Clavelou, William Camu, Stéphane Chanalet, Nicholas Ayache, and Grégoire Malandain.

186. Insight Into Efficient Image Registration Techniques and the Demons Algorithm. In Proc. Information Processing in Medical Imaging (IPMI'07), volume 4584 of Lecture Notes in Computer Science, Kerkrade, The Netherlands, pages 495-506, July 2007. Springer-Verlag. Note : PMID : 17633724. Tom Vercauteren, Xavier Pennec, Ezio Malis, Aymeric Perchant, and Nicholas Ayache.

187. Diffeomorphic Demons Using ITK's Finite Difference Solver Hierarchy. In Insight Journal – ISC/NA-MIC Workshop on Open Science at MICCAI 2007, October 2007. Note : Source code available online at http ://hdl.handle.net/1926/510. Tom Vercauteren, Xavier Pennec, Aymeric Perchant, and Nicholas Ayache.

188. Non-parametric Diffeomorphic Image Registration with the Demons Algorithm. In Nicholas Ayache, Sébastien Ourselin, and Anthony J. Maeder, editors, Proc. Medical Image Computing and Computer Assisted Intervention (MICCAI'07), volume 4792 of Lecture Notes in Computer Science, Brisbane, Australia, pages 319-326, October 2007. Springer-Verlag. Note : PMID : 18044584. Tom Vercauteren, Xavier Pennec, Aymeric Perchant, and Nicholas Ayache.

189. Sparse Approximation of Currents for Statistics on Curves and Surfaces. In Dimitris Metaxas, Leon Axel, Gabor Szekely, and Gabor Fichtinger, editors, Proc. Medical Image Computing and Computer Assisted Intervention (MICCAI), Part II, volume 5242 of LNCS, New-York, USA, pages 390-398, September 2008. Springer. Stanley Durrleman, Xavier Pennec, Alain Trouvé, and Nicholas Ayache. **Best paper award**.

190. Monitoring Slowly Evolving Tumors. In In Proceedings of the IEEE Internation Symposium on Biomedical Imaging : From Nano to Macro (ISBI'08), Paris, France, May 2008. E. Konukoglu, W.M. Wells, S. Novellas, N. Ayache, R. Kikinis, Black P,M, and K.M. Pohl.

191. Cardiac Electrophysiology Model Adjustment Using the Fusion of MR and Optical Imaging.. In Dimitris N. Metaxas, Leon Axel, Gabor Fichtinger, and Gabor Székely, editors, MICCAI, volume 5241 of Lecture Notes in Computer Science, pages 678-685, 2008. Springer. Damien Lepiller, Maxime Sermesant, Mihaela Pop, HervéDelingette, Graham A. Wright, and Nicholas Ayache.

192. Registration of 4D Time-Series of Cardiac Images with Multichannel Diffeomorphic Demons. In Dimitris Metaxas, Leon Axel, Gabor Fichtinger, and Gabor Székely, editors, Proc. Medical Image Computing and Computer Assisted Intervention (MICCAI'08), volume 5242 of Lecture Notes in Computer Science, New York, USA, pages 972-979, September 2008. Springer-Verlag. Jean-Marc Peyrat, Hervé Delingette, Maxime Sermesant, Xavier Pennec, Chenyang Xu, and Nicholas Ayache.

193. A New Evaluation Of The Brain Parenchymal Fraction : Application In Multiple Sclerosis Longitudinal Studies. In Proceedings of the IEEE International Symposium on Biomedical Imaging : From Nano to Macro (ISBI'08), Paris, France, pages 65-68, May 2008. IEEE. Jean-Christophe Souplet, Christine Lebrun, Nicholas Ayache, and Grégoire Malandain.

194. An Automatic Segmentation of T2-FLAIR Multiple Sclerosis Lesions. In MICCAI-Multiple Sclerosis Lesion Segmentation Challenge Workshop, New York, NY, USA, September 2008. Jean-Christophe Souplet, Christine Lebrun, Nicholas Ayache, and Grégoire Malandain. **winner of the segmentation challenge**.

195. An Integrated Platform for Dynamic Cardiac Simulation and Image Processing : Application to Personalised Tetralogy of Fallot Simulation. In Proc. Eurographics Workshop on Visual Computing for Biomedicine (VCBM), Delft, The Netherlands, 2008. Keyword(s) : Cardiac Simulation, Freeware, Dynamics, Visualization, VTK. N. Toussaint, T. Mansi, H. Delingette, N. Ayache, and M. Sermesant.

196. Symmetric Log-Domain Diffeomorphic Registration : A Demons-based Approach. In Dimitris Metaxas, Leon Axel, Gabor Fichtinger, and Gabor Székely, editors, Proc. Medical Image Computing and Computer Assisted Intervention (MICCAI'08), Part I, volume 5241 of Lecture Notes in Computer Science, New York, USA, pages 754-761, September 2008. Springer-Verlag. Tom Vercauteren, Xavier Pennec, Aymeric Perchant, and Nicholas Ayache.

197. Spherical Demons : Fast Surface Registration. In Dimitris Metaxas, Leon Axel, Gabor Fichtinger, and Gabor Székely, editors, Proc. Medical Image Computing and Computer Assisted Intervention (MICCAI'08), volume 5241 of Lecture Notes in Computer Science, New York, USA, pages 745-753, September 2008. Springer-Verlag. Boon Thye Thomas Yeo, Mert Sabuncu, Tom Vercauteren, Nicholas Ayache, Bruce Fischl, and Polina Golland.
198. DTI Registration with Exact Finite-Strain Differential. In Proceedings of the IEEE International Symposium on Biomedical Imaging : From Nano to Macro (ISBI'08), Paris, France, May 2008. IEEE. Boon Thye Thomas Yeo, Tom Vercauteren, Pierre Fillard, Xavier Pennec, Polina Golland, Nicholas Ayache, and Olivier Clatz.
199. Cardiac Motion Recovery by Coupling an Electromechanical Model and Cine-MRI Data : First Steps. In K. Miller and P.M.F. Nielsen, editors, Proc. of the Workshop on Computational Biomechanics for Medicine III. (Workshop MICCAI-2008), September 2008. Florence Billet, Maxime Sermesant, Hervé Delingette, and Nicholas Ayache.
200. A Forward Model to Build Unbiased Atlases from Curves and Surfaces. In X. Pennec and S. Joshi, editors, Proc. of the International Workshop on the Mathematical Foundations of Computational Anatomy (MFCA-2008), September 2008. Stanley Durrleman, Xavier Pennec, Alain Trouvé, and Nicholas Ayache.
201. A Global Criterion for the Computation of Statistical Shape Model Parameters Based on Correspondence Probabilities. In Springer, editor, Bildverarbeitung fur die Medizin 2008, pages 277-282, 2008. Heike Hufnagel, Xavier Pennec, Jan Ehrhardt, Nicholas Ayache, and Heinz Handels.
202. Comparison of Statistical Shape Models Built on Correspondence Probabilities and One-to-One Correspondences. In Proc. SPIE Symposium on Medical Imaging '08, volume 6914 of SPIE Conference Series, San Diego, USA, February 2008. H. Hufnagel, X. Pennec, J. Ehrhardt, N. Ayache, and H. Handels.
203. Endomicroscopic image retrieval and classification using invariant visual features. In Proceedings of the Sixth IEEE International Symposium on Biomedical Imaging 2009 (ISBI'09), Boston, MA, pages 346-349, August 2009. IEEE. Barbara André, Tom Vercauteren, Aymeric Perchant, Michael B. Wallace, Anna M. Buchner, and Nicholas Ayache.
204. Introducing space and time in local feature-based endomicroscopic image retrieval. In Proceedings of the MICCAI Workshop - Medical Content-based Retrieval for Clinical Decision (MCBR-CDS'09), volume 5853 of Lecture Notes in Computer Science, pages 18-30, February 2009. Springer. Barbara André, Tom Vercauteren, Aymeric Perchant, Michael B. Wallace, Anna M. Buchner, and Nicholas Ayache.
205. Cardiac Motion Recovery and Boundary Conditions Estimation by Coupling an Electromechanical Model and Cine-MRI Data. In Proceedings of Functional Imaging and Modeling of the Heart 2009 (FIMH'09), volume 5528 of LNCS, pages 376-385, 3-5 June 2009. Florence Billet, Maxime Sermesant, Hervé Delingette, and Nicholas Ayache
206. Stanley Durrleman, Pierre Fillard, Xavier Pennec, Alain Trouvé, and Nicholas Ayache. A Statistical Model of White Matter Fiber Bundles based on Currents. In Jerry L. Prince, Dzung L. Pham, and Kyle J. Myers, editors, Proceedings of Information Processing in Medical Imaging (IPMI'09), volume 5636 of LNCS, pages 114-125, 2009. Note : PMID : 19694257.
207. Spatiotemporal Atlas Estimation for Developmental Delay Detection in Longitudinal Datasets. In Guang-Zhong Yang, David Hawkes, Daniel Rueckert, Alison Noble, and Chris Taylor, editors, Medical Image Computing and Computer-Assisted Intervention (MICCAI'09), Part I, volume 5761 of Lecture Notes in Computer Science, London, UK, pages 297-304, September 2009. Springer. Stanley Durrleman, Xavier Pennec, Alain Trouvé, Guido Gerig, and Nicholas Ayache.
208. Adaptive Tetrahedral Meshing for Personalized Cardiac Simulations. In MICCAI Workshop on Cardiovascular Interventional Imaging and Biophysical Modelling (CI2BM09), London United Kingdom, pages 149-158, 2009. Hans Lamecker, Tommaso Mansi, Jatin Relan, Florence Billet, Maxime Sermesant, Nicholas Ayache, and Hervé Delingette.
209. A Statistical Model of Right Ventricle in Tetralogy of Fallot for Prediction of Remodelling and Therapy Planning. In Proc. Medical Image Computing and Computer Assisted Intervention (MICCAI'09), volume 5761 of Lecture Notes in Computer Science, London, UK, pages 214-221, September 2009. Springer. Tommaso Mansi, Stanley Durrleman, Boris Bernhardt, Maxime Sermesant, Hervé Delingette, Ingmar Voigt, Philipp Lurz, Andrew M Taylor, Julie Blanc, Younes Boudjemline, Xavier Pennec, and Nicholas Ayache.
210. Physically-Constrained Diffeomorphic Demons for the Estimation of 3D Myocardium Strain from Cine-MRI. In Proceedings of Functional Imaging and Modeling of the Heart 2009 (FIMH'09), volume 5528 of LNCS, pages 201-210, 3-5 June 2009. Tommaso Mansi, Jean-Marc Peyrat, Maxime Sermesant, Hervé Delingette, Julie Blanc, Younes Boudjemline, and Nicholas Ayache.

211. Characterization of Post-infarct Scars in a Porcine Model - a Combined Experimental and Theoretical Study. In Proceedings of Functional Imaging and Modeling of the Heart 2009 (FIMH'09), volume 5528 of LNCS, pages 1-10, 3-5 June 2009. Mihaela Pop, Maxime Sermesant, Tommaso Mansi, Eugene Crystal, Jay Detsky, Yuesong Yang, Paul Fefer, Elliot McVeigh, Alexander Dick, Nicholas Ayache, and Graham Wright.

212. Quantitative comparison of two cardiac electrophysiology models using personalisation to optical and MR data. In IEEE International Symposium on Biomedical Imaging : From Nano to Macro (ISBI'09), Boston, MA, pages 1027-1030, July 2009. Jatin Relan, Maxime Sermesant, Hervé Delingette, Mihaela Pop, Graham Wright, and Nicholas Ayache.

213. Parameter Estimation of a 3D Cardiac Electrophysiology Model Including the Restitution Curve Using Optical and MR Data. In Olaf DÃ¶ssel and Wolfgang C. Schlegel, editors, World Congress on Medical Physics and Biomedical Engineering, volume 25/IV of IFMBE Proceedings, Munich, Germany, pages 1716-1719, September 2009. Springer. Jatin Relan, Maxime Sermesant, Mihaela Pop, Hervé Delingette, Michel Sorine, Graham Wright, and Nicholas Ayache.

214. Volumetric Prediction of Cardiac Electrophysiology using a Heart Model Personalised to Surface Data. In MICCAI Workshop on Cardiovascular Interventional Imaging and Biophysical Modelling - CI2BM09, London, UK, pages 19-27, 2009. Jatin Relan, Maxime Sermesant, Mihaela Pop, Hervé Delingette, Michel Sorine, Graham Wright, and Nicholas Ayache.

215. Joint segmentation via patient-specific latent anatomy model. In MICCAI Workshop on Probabilistic Methods in Medical Image Analysis (PMMIA'09)), London, UK, September 2009. Tammy Riklin-Raviv, Bjoern H. Menze, Koen Van Leemput, Bram Stieltjes, Marc-André Weber, Nicholas Ayache, William M. Wells, and Polina Golland.

216. Personalised Electromechanical Model of the Heart for the Prediction of the Acute Effects of Cardiac Resynchronisation Therapy. In Proceedings of Functional Imaging and Modeling of the Heart 2009 (FIMH'09), volume 5528 of LNCS, pages 239-248, 3-5 June 2009. Maxime Sermesant, Florence Billet, Radomir Chabiniok, Tommaso Mansi, Phani Chinchapatnam, Philippe Moireau, Jean-Marc Peyrat, Kawal Rhode, Matt Ginks, Pier Lambiase, Simon Arridge, Hervé Delingette, Michel Sorine, Aldo Rinaldi, Dominique Chapelle, Reza Razavi, and Nicholas Ayache.

217. An image retrieval approach to setup difficulty levels in training systems for endomicroscopy diagnosis. In Medical Image Computing and Computer-Assisted Intervention (MICCAI'10), number 6362 of Lecture Notes in Computer Science, Beijing, China, pages 480-487, September 2010. Springer. Barbara André, Tom Vercauteren, Anna M. Buchner, Muhammad Waseem Shahid, Michael B. Wallace, and Nicholas Ayache

218. Endomicroscopic video retrieval using mosaicing and visual words. In Proceedings of the Seventh IEEE International Symposium on Biomedical Imaging 2010 (ISBI'10), pages 1419-1422, 2010. IEEE. Barbara André, Tom Vercauteren, Michael B. Wallace, Anna M. Buchner, and Nicholas Ayache

219. Ventricular Scar At Cardiac CT Correlates To Critical Isthmuses Of Ventricular Tachycardia Circuits And Sites Of Slow Conduction During Sinus Rhythm - Evidence For Clinical Use Of CT Integration Into 3D Mapping Systems. In Heart Rhythm Society '11, May 2011. H. Cochet, A. S. Jadidi, F. Sacher, N. Derval, M. Sermesant, J. Relan, S. J. Kim, P. Bordachar, P. Ritter, M. Hocini, M. Montaudon, F. Laurent, N. Ayache, M. HaÃ¯ssaguerre, and P. Jais

220. Ventricular Scar imaging at MRI Correlates to Critical Isthmuses of Ventricular Tachycardia Circuits and Sites of Slow Conduction during Sinus Rhythm - Utility of integrating MR-data into 3D Mapping Systems. In Heart Rhythm Society '11, May 2011 A. S. Jadidi, H. Cochet, F. Sacher, S. J. Kim, M. Sermesant, J. Relan, N. Derval, S. Miyazaki, A. Shah, D. Scherr, S. B. Wilton, P. Pascale, L. Roten, M. Pederson, S. Knecht, P. Bordachar, P. Ritter, M. Hocini, M. Montaudon, F. Laurent, N. Ayache, M. HaÃ¯ssaguerre, and P. Jais.

221. Comparison of the endocast growth of chimpanzees and bonobos via temporal regression and spatiotemporal registration. In Miccai Workshop on Spatio-Temporal Image Analysis for Longitudinal and Time-Series Image Data, Beijing, China, September 2010. Stanley Durrleman, Xavier Pennec, Alain Trouvé, Nicholas Ayache, and José Braga.

222. Diffeomorphic demons and the EMPIRE10 challenge. In Miccai Workshop on Grand Challenges in Medical Image Analysis, Beijing, China, September 2010. Vincent Garcia, Tom Vercauteren, Grégoire Malandain, and Nicholas Ayache.

223. Spatial Decision Forests for MS Lesion Segmentation in Multi-Channel MR Images. In Medical Image Computing and Computer-Assisted Intervention (MICCAI'10), LNCS, Beijing, China, September 2010. Springer.

Ezequiel Geremia, Bjoern H. Menze, Olivier Clatz, Ender Konukoglu, Antonio Criminisi, and Nicholas Ayache. **Nominated for Young Scientist Award 2010**.

224. 4D registration of serial brain MR's images : a robust measure of changes applied to Alzheimer's disease. In Miccai Workshop on Spatio-Temporal Image Analysis for Longitudinal and Time-Series Image Data, Beijing, China, September 2010. Marco Lorenzi, Nicholas Ayache, Giovanni Frisoni, and Xavier Pennec ; **Best paper award**.
225. LogDemons Revisited : Consistent Regularisation and Incompressibility Constraint for Soft Tissue Tracking in Medical Images. In Proc. of Medical Image Computing and Computer-Assisted Intervention (MICCAI'10), part II, volume 6362 of LNCS, Beijing, China, pages 652-659, September 2010. Tommaso Mansi, Xavier Pennec, Maxime Sermesant, Hervé Delingette, and Nicholas Ayache.
226. A generative model for brain tumor segmentation in multi-modal images. In Medical Image Computing and Computer-Assisted Intervention (MICCAI'10), LNCS, Beijing, China, September 2010. Springer. Bjoern H. Menze, Koen Van Leemput, Danial Lashkari, Marc-André Weber, Nicholas Ayache, and Polina Golland.
227. Non-Invasive Activation Times Estimation using 3D Echocardiography. In Proc. MICCAI Workshop on Statistical Atlases and Computational Models of the Heart : Mapping Structure and Function + a Cardiac Electrophysiological Simulation Challenge (STACOM+CESC'10), volume 6364 of LNCS, Beijing, September 2010. Springer. Adityo Prakosa, Maxime Sermesant, Hervé Delingette, Eric Saloux, Pascal Allain, Pascal Cathier, Patrick Etyngier, Nicolas Villain, and Nicholas Ayache.
228. Coupled Personalisation of Electrophysiology Models for Simulation of Induced Ischemic Ventricular Tachycardia. In Proc. Medical Image Computing and Computer Assisted Intervention (MICCAI'10), LNCS, Beijing, China, September 2010. Jatin Relan, Phani Chinchapatnam, Maxime Sermesant, Kawal Rhode, Hervé Delingette, Reza Razavi, and Nicholas Ayache.
229. Personalisation of a 3D Cardiac Electrophysiology Model for Ventricular Myocardium using Optical Mapping and MRI. In MICCAI Workshop on Statistical Atlases and Computational Models of the Heart : Mapping Structure and Function (STACOM) and a Cardiac Electrophysiological Simulation Challenge (CESC'10), volume 6364 of LNCS, 2010. Springer. J. Relan, M. Pop, H. Delingette, G.A. Wright, N. Ayache, and M. Sermesant.
230. Cardiac motion estimation using a proactive deformable model : evaluation and sensitivity analysis. In MICCAI Workshop on Statistical Atlases and Computational Models of the Heart : Mapping Structure and Function (STACOM) and a Cardiac Electrophysiological Simulation Challenge (CESC'10), volume 6364 of LNCS, 2010. Springer. K. C. L. Wong, F. Billet, T. Mansi, R. Chabiniok, M. Sermesant, H. Delingette, and N. Ayache.
231. Retrieval evaluation and distance learning from perceived similarity between endomicroscopy videos. In Proceedings of Medical Image Computing and Computer Assisted Intervention (MICCAI), LNCS, pages 8p, 2011. Springer, Heidelberg. Barbara André, Tom Vercauteren, Anna M. Buchner, Michael B. Wallace, and Nicholas Ayache.
232. Ventricular Scar At Cardiac CT Correlates To Critical Isthmuses Of Ventricular Tachycardia Circuits And Sites Of Slow Conduction During Sinus Rhythm - Evidence For Clinical Use Of CT Integration Into 3D Mapping Systems. In Heart Rhythm Society '11, May 2011. H. Cochet, A. S. Jadidi, F. Sacher, N. Derval, M. Sermesant, J. Relan, S. J. Kim, P. Bordachar, P. Ritter, M. Hocini, M. Montaudon, F. Laurent, N. Ayache, M. HaÃ¯ssaguerre, and P. Jais.
233. Ventricular Scar imaging at MRI Correlates to Critical Isthmuses of Ventricular Tachycardia Circuits and Sites of Slow Conduction during Sinus Rhythm - Utility of integrating MR-data into 3D Mapping Systems. In Heart Rhythm Society '11, May 2011. A. S. Jadidi, H. Cochet, F. Sacher, S. J. Kim, M. Sermesant, J. Relan, N. Derval, S. Miyazaki, A. Shah, D. Scherr, S. B. Wilton, P. Pascale, L. Roten, M. Pederson, S. Knecht, P. Bordachar, P. Ritter, M. Hocini, M. Montaudon, F. Laurent, N. Ayache, M. HaÃ¯ssaguerre, and P. Jais.
234. Statistical Analysis of the Human Cardiac Fiber Architecture from DT-MRI. In Leon Axel and Dimitris Metaxas, editors, Proceedings of FIMH Conference 2011, volume 6666 of LNCS, pages 171-179, May 2011. Springer. Note : **Best Paper Award**. Herve Lombaert, Jean-Marc Peyrat, Pierre Croisille, Stanislas Rapacchi, Laurent Fanton, Patrick Clarysse, Hervé Delingette, and Nicholas Ayache.
235. Human Statistical Atlas of Cardiac Fiber Architecture from DT-MRI. In Proceedings of Intl. Soc. Mag. Reson. Med. (ISMRM) 2011, volume 19, pages 280, May 2011. Herve Lombaert, Jean-Marc Peyrat, Stanislas Rapacchi, Laurent Fanton, Herve Delingette, Nicholas Ayache, and Pierre Croisille.
236. Statistical Atlas of Human Cardiac Fibers : Comparison with Abnormal Hearts. In Proceedings of STACOM Workshop at MICCAI 2011, September 2011. Springer. Herve Lombaert, Jean-Marc Peyrat, Laurent Fanton, Farida Cheriet, Hervé Delingette, Nicholas Ayache, Patrick Clarysse, Isabelle Magnin, and Pierre Croisille.

237. Mapping the effects of Ab142 levels on the longitudinal changes in healthy aging : hierarchical modeling based on stationary velocity fields.. In Proceedings of Medical Image Computing and Computer Assisted Intervention (MICCAI), LNCS, pages 8p, 2011. Springer, Heidelberg. Marco Lorenzi, Nicholas Ayache, Giovanni B. Frisoni, and Xavier Pennec.

238. Schilds Ladder for the parallel transport of deformations in time series of images. In G. Szekely and H. Hahn, editors, Proceedings of Information Processing in Medical Imaging (IPMI'11), LNCS, pages 12p, 2011. Marco Lorenzi, Nicholas Ayache, and Xavier Pennec.

239. Layered Spatio-temporal Forests for Left Ventricle Segmentation from 4D Cardiac MRI Data. In Proceedings of STACOM Workshop at MICCAI 2011, September 2011. Jan Margeta, Ezequiel Geremia, Antonio Criminisi, and Nicholas Ayache.

240. A Generative Approach for Image-Based Modeling of Tumor Growth. In G. Szekely and H. Hahn, editors, Proceedings of Information Processing in Medical Imaging (IPMI'11), LNCS 6801, pages 13p, 2011. Bjoern H. Menze, Koen Van Leemput, Antti Honkela, Ender Konukoglu, Marc-Andre Weber, Nicholas Ayache, and Polina Golland.

241. A 3D MRI-Based Cardiac Computer Model to Study Arrhythmia and Its In-vivo Experimental Validation. Proceedings of FIMH 2011, volume 6666 of LNCS,, pages 195-205, 2011. Mihaela Pop, Maxime Sermesant, Jean-Marc Peyrat, Eugene Crystal, Sudip Ghate, Tommaso Mansi, Ilan Lashevsky, Beiping Qiang, Elliot R. McVeigh, Nicholas Ayache, and Graham A. Wright.

242. Synthetic Echocardiographic Image Sequences for Cardiac Inverse Electro-Kinematic Learning. In Proceedings of Medical Image Computing and Computer Assisted Intervention (MICCAI), LNCS, Toronto, Canada, pages 8p, September 2011. Springer, Heidelberg. Adityo Prakosa, Maxime Sermesant, Hervé Delingette, Eric Saloux, Pascal Allain, Pascal Cathier, Patrick Etyngier, Nicolas Villain, and Nicholas Ayache.

243. Spatial Decision Forests for Glioma Segmentation in Multi-Channel MR Images. In MICCAI Challenge on Multimodal Brain Tumor Segmentation, October 2012. Ezequiel Geremia, Bjoern H. Menze, and Nicholas Ayache.

244. Brain tumor cell density estimation from multi-modal MR images based on a synthetic tumor growth model. In MICCAI Workshop on Medical Computer Vision, LNCS, October 2012. Springer. Ezequiel Geremia, Bjoern H. Menze, Marcel Prastawa, Marc-André Weber, Antonio Criminisi, and Nicholas Ayache.

    Herve Lombaert, Leo Grady, Xavier Pennec, Nicholas Ayache, and Farida Cheriet.

245. Spectral Demons - Image Registration via Global Spectral Correspondence. In Proc. of ECCV (2), number 7573 of LNCS, pages 30-44, 2012. Herve Lombaert, Leo Grady, Xavier Pennec, Nicholas Ayache, and Farida Cheriet.

246. Groupwise Spectral Log-Demons Framework for Atlas Construction. In Medical Computer Vision (MCV'12) MICCAI workshop, 2012. Note : Best paper award. Hervé Lombaert, Leo Grady, Xavier Pennec, Jean-Marc Peyrat, Nicholas Ayache, and Farida Cheriet.

247. Disentangling the normal aging from the pathological Alzheimer's disease progression on cross-sectional structural MR images. In MICCAI workshop on Novel Imaging Biomarkers for Alzheimer's Disease and Related Disorders (NIBAD'12), pages 145-154, October 2012. Marco Lorenzi, Nicholas Ayache, and Xavier Pennec.

248. Regional flux analysis of longitudinal atrophy in Alzheimer's disease. In Proceedings of Medical Image Computing and Computer Assisted Intervention 2012 (MICCAI), LNCS, October 2012. Springer, Heidelberg. Marco Lorenzi, Nicholas Ayache, and Xavier Pennec.

249. Probabilistic Flux Analysis of Cerebral Longitudinal Atrophy. In MICCAI workshop on Novel Imaging Biomarkers for Alzheimer's Disease and Related Disorders (NIBAD'12), pages 256-265, October 2012. Marco Lorenzi, Giovanni B. Frisoni, Nicholas Ayache, and Xavier Pennec.

250. Cardiac Mechanical Parameter Calibration based on the Unscented Transform. In Proceedings of Medical Image Computing and Computer Assisted Intervention 2012 (MICCAI), volume 7511 of LNCS, October 2012. Springer, Heidelberg. S. Marchesseau, H. Delingette, M. Sermesant, K. Rhode, S.G. Duckett, C.A. Rinaldi, R. Razavi, and N. Ayache.

251. Predicting the Location of Glioma Recurrence After a Resection Surgery. In Proceedings of 2nd International MICCAI Workshop on Spatiotemporal Image Analysis for Longitudinal and Time-Series Image Data (STIA'12), LNCS, Nice, October 2012. Springer. Erin Stretton, Emmanuel Mandonnet, Ezequiel Geremia, Bjoern H. Menze, Hervé Delingette, and Nicholas Ayache.

252. Glioblastoma growth modeling for radiotherapy target delineation.. In Proc MICCAI Workshop on Image-Guidance and Multimodal Dose Planning in Radiation Therap., pages 12 pages, 2012. J. Unkelbach, Bjoern H. Menze, A. Motamedi, F. Dittmann, Ender Konukoglu, Nicholas Ayache, and H. Shih.

253. Strain-Based Regional Nonlinear Cardiac Material Properties Estimation From Medical Images. In Proceedings of Medical Image Computing and Computer Assisted Intervention 2012 (MICCAI), LNCS, October 2012. Springer, Heidelberg. Ken C. L. Wong, Jatin Relan, Linwei Wang, Maxime Sermesant, Hervé Delingette, Nicholas Ayache, and Pengcheng Shi.

254. Spatially Adaptive Random Forest. In Proceedings of the 10th IEEE International Symposium on Biomedical Imaging 2013 (ISBI'13), San Francisco, USA, April 2013. IEEE. Ezequiel Geremia, Bjoern H. Menze, and Nicholas Ayache.

255. Lattice Boltzmann Method For Fast Patient-Specific Simulation of Liver Tumor Ablation from CT Images. In Kensaku Mori, Ichiro Sakuma, Yoshinobu Sato, Christian Barillot, and Nassir Navab, editors, MICCAI - Medical Image Computing and Computer Assisted Intervention - 2013, volume 8151, Nagoya, Japan, pages 323-330, September 2013. Chloé Audigier, Tommaso Mansi, Hervé Delingette, Saikiran Rapaka, Viorel Mihalef, Puneet Sharma, Ali Kamen, Daniel Carnegie, Emad Boctor, Michael Choti, Dorin Comaniciu, and Nicholas Ayache.

256. Image-based motion detection in 4D images and application to respiratory motion suppression. In ISBI - International Symposium on Biomedical Imaging, Proceedings of the 2013 IEEE 10th International Symposium on Biomedical Imaging : From Nano to Macro, San Francisco, United States, pages 792-795, April 2013. IEEE. Marine Breuilly, Grégoire Malandain, Nicholas Ayache, Julien Guglielmi, Thierry Pourcher, R. Franken, Philippe, and Jacques Darcourt.

257. . Patch-based Segmentation of Brain Tissues. In Bjoern Menze, Mauricio Reyes, Andras Jakab, Elisabeth Gerstner, Justin Kirby, and Keyvan Farahani, editors, MICCAI Challenge on Multimodal Brain Tumor Segmentation, Proceedings of the MICCAI Challenge on Multimodal Brain Tumor Image Segmentation (BRATS) 2013, Nagoya, Japan, pages 6 - 17, September 2013. IEEE. Nicolas Cordier, Bjoern Menze, Hervé Delingette, and Nicholas Ayache

258. Bayesian Atlas Estimation for the Variability Analysis of Shape Complexes. In MICCAI 2013 - 16th International Conference on Medical Image Computing and Computer Assisted Intervention, Nagoya, Japan, pages P1-21, September 2013. Pietro Gori, Olivier Colliot, Yulia Worbe, Linda Marrakchi-Kacem, Sophie Lecomte, Cyril Poupon, Andreas Hartmann, Nicholas Ayache, and Stanley Durrleman.

259. Towards joint morphometry of white matter tracts and gray matter surfaces. In Human Brain Mapping, Seattle, United States, 2013. Note : Organization for Human Brain Mapping 2013. Pietro Gori, Olivier Colliot, Yulia Worbe, Linda Marrakchi-Kacem, Sophie Lecomte, Cyril Poupon, Andreas Hartmann, Nicholas Ayache, and Stanley Durrleman.

260. Improving DTI Resolution from a Single Clinical Acquisition : A Statistical Approach using Spatial Prior. In Kensaku Mori, Ichiro Sakuma, Yoshinobu Sato, Christian Barillot, and Nassir Navab, editors, Proceedings of Medical Image Computing and Computer Assisted Intervention 2013 (MICCAI), volume 8151, Nagoya, Japan, pages 477-484, September 2013. Springer. Vikash Gupta, Nicholas Ayache, and Xavier Pennec.

261. Conversion to MCI in healthy individuals with abnormal CSF Ab42 levels is associated with specific longitudinal morphological changes. In Alzheimer's Association International Conference 2013, volume 9, issue 4 (supplement) of Alzheimer's and Dementia : The Journal of the Alzheimer's Association, Boston, United States, pages P596, July 2013. Marco Lorenzi, Martina Bochetta, Nicholas Ayache, Xavier Pennec, and B. Frisoni, Giovanni.

262. Sparse Scale-Space Decomposition of Volume Changes in Deformations Fields. In Kensaku Mori, Ichiro Sakuma, Yoshinobu Sato, Christian Barillot, and Nassir Navab, editors, Medical Image Computing and Computer Aided Intervention (MICCAI), volume 8150, Nagoya, Japan, pages 328-335, September 2013. Springer. Marco Lorenzi, H. Menze, Bjoern, Marc Niethammer, Nicholas Ayache, and Xavier Pennec.

263. Decision forests for segmentation of left atrium from 3D MRI. In 4th International Workshop on Statistical Atlases and Computational Models of the Heart, Nagoya, Japan, September 2013. Jan Margeta, Kristin Mcleod, Antonio Criminisi, and Nicholas Ayache.

264. Importance of patient DTI's to accurately model glioma growth using the reaction diffusion equation. In 2013 IEEE International Symposium on Biomedical Imaging : From Nano to Macro, San Francisco, CA, United States, pages 1130-32, 2013. IEEE. Erin Stretton, Ezequiel Geremia, H. Menze, Bjoern, Hervé Delingette, and Nicholas Ayache.

265. Inter-Operative Trajectory Registration for Endoluminal Video Synchronization : Application to Biopsy Site Re-localization. In International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), volume 8149 of Medical Image Computing and Computer-Assisted Intervention - MICCAI 2013, Nagoya, Japan, pages 372-379, September 2013. Springer. Anant S. Vemuri, A. Nicolau, Stephane, Nicholas Ayache, Jacques Marescaux, and Luc Soler.

266. Parameter Estimation For Personalization of Liver Tumor Radiofrequency Ablation. In MICCAI Workshop on Abdominal Imaging – Computational and Clinical Applications, Boston, United States, September 2014. Chloé Audigier, Tommaso Mansi, Hervé Delingette, Saikiran Rapaka, Viorel Mihalef, Daniel Carnegie, Emad Boctor, Michael Choti, Ali Kamen, Dorin Comaniciu, and Nicholas Ayache.

267. Confidence-based Training for Clinical Data Uncertainty in Image-based Prediction of Cardiac Ablation Targets. In bigMCV Workshop MICCAI 2014, Boston, United States, September 2014. Rocio Cabrera Lozoya, Jan Margeta, Loic Le Folgoc, Yuki Komatsu, Berte Benjamin, Jatin Relan, Hubert Cochet, Michel Haissaguerre, Pierre Jais, Nicholas Ayache, and Maxime Sermesant.

268. Pietro Gori, Olivier Colliot, Linda Marrakchi-Kacem, Yulia Worbe, Fabrizio De Vico Fallani, Mario Chavez, Sophie Lecomte, Cyril Poupon, Andreas Hartmann, Nicholas Ayache, and Stanley Durrleman. A Prototype Representation to Approximate White Matter Bundles with Weighted Currents. In MICCAI 2014 - 17th International Conference on Medical Image Computing and Computer Assisted Intervention, Boston, United States, September 2014.

269. A Biophysical Model of Shape Changes due to Atrophy in the Brain with Alzheimer's Disease. In P. GOLLAND, N. HATA, C. BARILLOT, J. HORNEGGER, and R. HOWE, editors, MICCAI 2014 - 17th International Conference Medical Image Computing and Computer-Assisted Intervention, volume 8674 of LNCS - Lecture Notes in Computer Science, Springer, Boston, United States, pages 41-48, September 2014. Springer. Bishesh Khanal, Marco Lorenzi, Nicholas Ayache, and Xavier Pennec.

270. Smart Atlas for Supporting the Interpretation of probe-based Confocal Laser Endomicroscopy (pCLE) of Biliary Strictures : First Classification Results of a Computer-Aided Diagnosis Software based on Image Recognition. In Digestive Disease Week (DDW 2014), Chicago, United States, May 2014. Marzieh Kohandani Tafreshi, Virendra Joshi, Alexander Meining, Charles Lightdale, Marc Giovannini, Julien Dauguet, Nicholas Ayache, and Barbara André.

271. Smart Atlas for Supporting the Interpretation of probe-based Confocal Laser Endomicroscopy (pCLE) of Gastric Lesions : First Classification Results of a Computer-Aided Diagnosis Software based on Image Recognition. In Digestive Disease Week (DDW 2014), Chicago, United States, May 2014. Marzieh Kohandani Tafreshi, Yan-Qing Li, Rapat Pittayanon, Douglas Pleskow, Virendra Joshi, Philip Chiu, Julien Dauguet, Nicholas Ayache, and Barbara André.

272. Semi-automated Query Construction for Content-based Endomicroscopy Video Retrieval. In Medical Image Computing and Computer Assisted Intervention (MICCAI), Boston, United States, September 2014. Marzieh Kohandani Tafreshi, Nicolas Linard, Barbara André, Nicholas Ayache, and Tom Vercauteren.

273. Smart Atlas for Supporting the Interpretation of needle-based Confocal Laser Endomicroscopy (nCLE) of Pancreatic Cysts : First Classification Results of a Computer-Aided Diagnosis Software based on Image Recognition. In Digestive Disease Week (DDW 2014), Chicago, United States, May 2014. Marzieh Kohandani Tafreshi, Bertrand Napoléon, Anne-Isabelle Lemaistre, Marc Giovannini, Virendra Joshi, Julien Dauguet, Nicholas Ayache, and Barbara André.

274. Sparse Bayesian Registration. In MICCAI - 17th International Conference on Medical Image Computing and Computer Assisted Intervention, Boston, United States, September 2014. Loic Le Folgoc, Hervé Delingette, Antonio Criminisi, and Nicholas Ayache.

275. Laplacian Forests : Semantic Image Segmentation by Guided Bagging. In Polina Golland, Nobuhiko Hata, Christian Barillot, Joachim Hornegger, and Robert Howe, editors, MICCAI 2014 - 17th International Conference Medical Image Computing and Computer-Assisted Intervention, volume 8674 of LNCS - Lecture Notes in Computer Science, Boston, United States, September 2014. Springer. Herve Lombaert, Darko Zikic, Antonio Criminisi, and Nicholas Ayache.

276. Multimodal Analysis of Vasogenic Edema in Glioblastoma Patients for Radiotherapy Planning. In Workshop Image-Guided Adaptive Radiation Therapy, Boston, United States, September 2014. Matthieu Lê, Hervé Delingette, Jayashree Kalpathy-Cramer, Elisabeth Gerstner, Helen A. Shih, Tracy Batchelor, Jan Unkelbach, and Nicholas Ayache.

277. Recognizing cardiac magnetic resonance acquisition planes. In MIUA - Medical Image Understanding and Analysis Conference - 2014, London, United Kingdom, July 2014. Jan Margeta, Antonio Criminisi, Daniel C. Lee, and Nicholas Ayache.

278. Chloé Audigier, Tommaso Mansi, Hervé Delingette, Saikiran Rapaka, Tiziano Passerini, Viorel Mihalef, Raoul Pop, Michele Diana, Luc Soler, Ali Kamen, Dorin Comaniciu, and Nicholas Ayache. Challenges to Validate Multi-physics Model of Liver Tumor Radiofrequency Ablation from Pre-clinical Data. In Computational Biomechanics for Medicine X, Munich, Germany, pages 29-40, October 2015.

279. Héloise Bleton, Jan Margeta, Herve Lombaert, Hervé Delingette, and Nicholas Ayache. Myocardial Infarct Localization using Neighborhood Approximation Forests. In Statistical Atlases and Computational Modeling of the Heart (STACOM 2015), Munich, Germany, October 2015.

280. Pietro Gori, Olivier Colliot, Linda Marrakchi-Kacem, Yulia Worbe, Alexandre Routier, Cyril Poupon, Andreas Hartmann, Nicholas Ayache, and Stanley Durrleman. Joint Morphometry of Fiber Tracts and Gray Matter structures using Double Diffeomorphisms. In IPMI - Information Processing in Medical Imaging, volume 9123 of Lecture Notes in Computer Science, Isle of Skye, United Kingdom, pages 275-287, June 2015.

281. Pietro Gori, Olivier Colliot, Linda Marrakchi-Kacem, Yulia Worbe, Alexandre Routier, Cyril Poupon, Andreas Hartmann, Nicholas Ayache, and Stanley Durrleman. Unified analysis of shape and structural connectivity of neural pathways. In Organisation for Human Brain Mapping, Honolulu, Hawaii, United States, 2015.

282. Bishesh Khanal, Marco Lorenzi, Nicholas Ayache, and Xavier Pennec. Simulating Patient Specific Multiple Time-point MRIs From a Biophysical Model of Brain Deformation in Alzheimer's Disease. In Workshop on Computational Biomechanics for Medicine - X, Munich, France, October 2015.

283. Herve Lombaert, Michael Arcaro, and Nicholas Ayache. Brain Transfer : Spectral Analysis of Cortical Surfaces and Functional Maps. In Sebastien Ourselin, Daniel C. Alexander, Carl-Fredrik Westin, and M. Jorge Cardoso, editors, Information Processing in Medical Imaging (IPMI 2015), volume 9123 of Lecture Notes in Computer Science, Scotland, United Kingdom, pages 474-487, July 2015. Springer.

284. Herve Lombaert, Michael Arcaro, Sabine Kastner, and Nicholas Ayache. Brain Transfer for the Analysis of Cortical Data. In Society for Neuroscience (SfN), Chicago, United States, October 2015.

285. Herve Lombaert, Antonio Criminisi, and Nicholas Ayache. Spectral Forests : Learning of Surface Data, Application to Cortical Parcellation. In Nassir Navab, Joachim Hornegger, William M. Wells, and Alejandro F. Frangi, editors, Medical Image Computingand Computer Assisted Intervention (MICCAI 2015), volume 9349 of Lecture Notes in Computer Science, Munich, Germany, pages 547-555, October 2015. Springer.

286. Matthieu Lê, Hervé Delingette, Jayashree Kalpathy-Cramer, Elizabeth R Gerstner, Tracy Batchelor, Jan Unkelbach, and Nicholas Ayache. Bayesian Personalization of Brain Tumor Growth Model. In Alejandro F. Frangi, Joachim Hornegger, Nassir Navab, and William M. Wells, editors, MICCAI - Medical Image Computing and Computer Assisted Intervention - 2015, volume 9350 of Lecture Notes in Computer Science - LNCS, Munich, Germany, pages 424-432, October 2015. Springer.

287. Matthieu Lê, Jan Unkelbach, Nicholas Ayache, and Hervé Delingette. GPSSI : Gaussian Process for Sampling Segmentations of Images. In Alejandro F. Frangi, Joachim Hornegger, Nassir Navab, and William M. Wells, editors, MICCAI - Medical Image Computing and Computer Assisted Intervention - 2015, volume 9351 of Lecture Notes in Computer Science - LNCS, Munich, Germany, pages 38-46, October 2015. Springer.

288. Jessie Mahé, Nicolas Linard, Marzieh Kohandani Tafreshi, Tom Vercauteren, Nicholas Ayache, Francois Lacombe, and Remi Cuingnet. Motion-Aware Mosaicing for Confocal Laser Endomicroscopy. In Medical Image Computing and Computer-Assisted Intervention – MICCAI 2015, volume 9349, Munich, Germany, pages 447-454, October 2015.

289. Roch Molléro, Dominik Neumann, Marc-Michel Rohé, Manasi Datar, Herve Lombaert, Nicholas Ayache, Dorin Comaniciu, Olivier Ecabert, Marcello Chinali, Gabriele Rinelli, Xavier Pennec, Maxime Sermesant, and Tommaso Mansi. Propagation of Myocardial Fibre Architecture Uncertainty on Electromechanical Model Parameter Estimation : A Case Study. In Functional Imaging and Modeling of the Heart, LNCS., 8th International Conference, FIMH 2015, Maastricht, The Netherlands, June 25-27, 2015. Proceedings, Maastricht, Netherlands, pages 448-456, June 2015.

290. Anant S. Vemuri, Stephane A. Nicolau, Jacques Marescaux, Luc Soler, and Nicholas Ayache. Automatic View-Point Selection for Inter-Operative Endoscopic Surveillance. In Medical Content-based Retrieval for Clinical Decision Support, Munich, Germany, October 2015. Tanveer Syeda-Mahmood and Hayit Greenspan and Anant Madabhushi.

Refereed Conference Publications in French (selection)

1. Reconnaissance récursive and localisation de formes planes partiellement visibles dans une image. *9ème Colloque sur le traitement du signal and ses applications*, Nice, pp. 611–617, May 1983, (avec C. Darmon).
2. Identification and localisation de formes planes : système commercialisés and perspectives d'évolution. *4ème Congrès de Reconnaissance des Formes et Intelligence Artificielle*, Journées de synthès, 16 pages, Jan. 1984.
3. Manipulation automatique de pièces industrielles en vrac planaire. *1er Colloque Image*, Biarritz, pp. 869–876, Mai 1984, (avec J.D. Boissonnat, B. Bollack, and B. Faverjon).
4. Un algorithme rapide de stéréovision passive utilisant la prédiction and la vérification récursive d'hypothèses. *5ème Congrès de Reconnaissance des Formes et Intelligence Artificielle*, Grenoble, pp. 1217–1232, Nov. 1985, (avec B. Faverjon).
5. Mise en correspondance de cartes de profondeur obtenues par stéréoscopie passive. *5ème Congrès de Reconnaissance des Formes et Intelligence Artificielle*, Grenoble, pp. 1203–1216, Nov. 1985, (avec O.D. Faugeras).
6. Stéréovision trinoculaire. *6ème Congrès de Reconnaissance des Formes and Intelligence Artificielle*, Antibes, 1987, (avec F. Lustman).
7. Construction, appariement and fusion de cartes visuelles bruitées. *6ème Congrès de Reconnaissance des Formes et Intelligence Artificielle*, Antibes, 1987, (avec O.D. Faugeras).
8. Lissage and Reconnaissance de courbes gauches bruitées, *8ème Congrès de Reconnaissance des Formes and Intelligence Artificielle*, Lyon, Novembre 1991. (A. Guéziec and N. Ayache). **prize of the best article at the RFIA'91 conference**
9. Mouvement de Structures 2D déformables – utilisation de caractéristiques géométriques différentielles, in *7èmee Congrès de Reconnaissance des Formes and Intelligence Artificielle*, Paris, 1994.
10. Recalage sans cadre stéréostaxique d'images volumiques et projectives en radiologie interventionnelle, in mini-colloque INSERM de radiologie interventionnelle, Paris, 1995. (N. Ayache, J. Feldmar and al.)
11. Tomodensimetrie and volumétrie tumorale, in *Actes des Journées Francaise de la radiologie (JFR'95)*, octobre 1995. (F. Chikli, H. Delingette, B. Padovani, C. Maestro, N. Ayache, J. Bruneton)
12. Construction d'un simulateur de chirurgie hépatique, in Actes du Congrès Mondial de Télémedecine, Toulouse, France, décembre 1995. (S. Cotin, H. Delingette, N. Ayache).
13. Une méthode générale pour construire automatiquement des atlas anatomiques morphométriques : application à un atlas du crâne, in Actes du 10eme congrès en Reconnaissance des formes et Intelligence Artificielle (RFIA'96),
14. Activation mnésique en TEMP", *Colloque de médecine nucléaire*, Rennes, France, 1997. (Migneco, O. and Darcourt, J. and Benoit, M. and Malandain, G. and Thirion, J.-P. and Robert, Ph. and Vidal, R. and Desvignes, Ph. and Benoliel, J. and Ayache, N. and Bussière, F.).
15. L'œil virtuel. *Congrès de la société française d'ophtalmologie*, 1997. (Bondiau, P.-Y. and Malandain, G. and Ayache, N. and Zur, C. and Chauvel, P. and Gastaud, P)
16. Modèles numériques pour la simulation et la prédiction de la fonction cardiaque. In Congrès de la Société Francaise de Pédiatrie et de l'Association des Pédiatres de Langue FranÃ§aise (APLF), Archives de Pédiatrie 17(6) :611-2, 2010 ; T. Mansi, M. Sermesant, H. Delingette, X. Pennec, N. Ayache, and Y. Boudjemline.

Theses Publications (in French)

1. *Un système de vision bidimensionnelle en robotique industrielle*, Thèse de Docteur Ingénieur, Univ. Paris XI, 1983, 161 pages. (N. Ayache).
2. *Construction and fusion de cartes visuelles 3D : Application à la robotique mobile*, Thèse d'Etat, spécialité informatique, Univ. Paris XI, 1988, 340 pages (N. Ayache).