

Pierre Jannin is a INSERM Research Director at the Medical School of the University of Rennes (France). He is the head of the MediCIS research group from both UMR 1099 LTSI, Inserm research institute and University of Rennes. He was awarded the PhD degree from the University of Rennes in 1988 on multimodal 3D imaging in neurosurgery and the “Habilitation” (HDR) from the University of Rennes in 2005 on information and knowledge assisted neurosurgery. He has about 30 year experience in designing and developing computer assisted surgery systems. His research topics include image-guided surgery, multimodal imaging data fusion, surgical data science, augmented reality, modeling of surgical procedures and processes, study of surgical expertise, surgical training and validation methodology in medical image processing. The main clinical application areas include functional neurosurgery and surgery of low-grade tumors in central areas. He authored or co authored more than 60 peer-reviewed international journal papers and more than 80 international conferences long papers. He is the President of the International Society of Computer Aided Surgery (ISCAS). He is board member of the MICCAI society. He is senior member of the SPIE society. He is Deputy Editor for the International Journal of Computer Assisted Radiology and Surgery. He is member of the Editorial Board of the Journal of Computer Aided Surgery. He is acted as associate editor and reviewer for several journals (e.g., IEEE TMI, MedIA, IJCARS, Neuroimage, Yearbook of Medical Informatics). He is member of several Organizing and Program Committees of international conferences, such as MICCAI, CARS, SPIE Medical Imaging, and MMVR. He is Co-General Chair and founder of IPCAI conferences from 2010.

Pierre JANNIN

SITUATION

Nationality: French

Date of Birth: 26 April 1963

3 children

Administrative Position: INSERM Senior Researcher

Professional address : MediCiS, UMR 1099 / LTSI, INSERM, Faculté de Médecine,
Université de Rennes 1, 2, Avenue du Pr Léon Bernard, CS34317, 35043 RENNES Cedex
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RESEARCH INTERESTS:

- Computer assisted surgery
- Image guided neurosurgery, Deep Brain Stimulation
- Augmented reality and virtuality
- Medical image fusion
- Surgical skill evaluation
- Surgical process models
- Validation in medical image processing and computer assisted surgery

EDUCATION

- *Habilitation*, University de Rennes 1, "From image guided neurosurgery towards an information and knowledge based neurosurgical process", 2005
- *Ph. D.*, University of Rennes I, Signal Analysis and Telecommunications, Thesis : "Modeling, display and analysis of 3D data using Octree in Medical Imaging", 1988
- *M. Sc.* in Automatics and Signal Analysis (option Pattern Recognition), Technological University of Compiègne (1985)
- *M Sc.* in Computer Science, University of Rennes I, 1984

SELECTED ACADEMIC & PROFESSIONAL APPOINTMENTS

2012-Today	INSERM Senior Researcher and Director	MediCIS UMR 1099 INSERM	Rennes, France
August 2015	Visiting Professor	SINTEF, Norwegian University of Science and Technology	Trondheim, Norway
May-August 2013	Visiting Professor	CAMIT, Kyushu University	Fukuoka, Japan
2005-2011	INSERM Senior Researcher	U746 INSERM	Rennes, France
2009-2010	Visiting Professor	BIC Montreal Neurological Institute McGill University	Montréal, Canada
2005-2010	Associate Member	ICCAS institute	Leipzig, Germany
1996-2004	Senior Researcher	UPRES 2232 and 3192	Rennes, France
1988-1996	Research Engineer	CERIUM	Rennes, France

TEACHING ACTIVITIES:

3D display in medical imaging, Data fusion in medical imaging, Validation in medical image processing, Image Guided Surgery, Surgical Process Modeling, Augmented reality and visualisation systems in surgery, Patient to Physical space Registration:

- n MSc (DEA) Biomedical Engineering, University of Tours-Angers-Nantes-Rennes
- n MSc of Biological Sciences in Medicine, University Rennes 1
- n European School of Medical Physics, Archamps
- n Initiator and manager of a MSc lectures unit on “Image Guided Surgery” and on “Basis in Medical image processing”

SCIENTIFIC ACTIVITIES

- n President of the International Society for Computer Aided Surgery (ISCAS)
- n Board member of the MICCAI Society
- n Area editor of International Journal for Computer Aided Radiology and Surgery (Springer)
- n Co General Chair and co-founder of the IPCAI international conference (Information Processing in Computer Assisted Interventions); proceedings in LNCS, Geneva July 2010, Berlin 2011, Pisa (Italy) 2012, Heidelberg 2013, Fukuoka (Japan) 2014, Barcelona 2015
 - * IPCAI is a highly selective international conference on computer aided interventions. The selection rate was below 33%, including posters. It consists of long papers with journal-like revision process and unlimited time for discussion during the conference.
- n Reviews for international journals: including IEEE TMI, IEEE TITB, IEEE TBE, IEEE EMB, Medical Image Analysis, IEEE TNS, IRBM, Academic Radiology, Cellular and Molecular Biology, Computer Methods and Programs in Biomedicine, IMIA Medical Informatics Yearbook, IJCARS, CAS, and Neuroimage
- n Reviewing for international conferences: MICCAI, CARS, SPIE, ACCV, MMVR, ...
- n Congress Organizing Committee, Program committee and executive committee member of Computer Assisted Radiology and Surgery conference (CARS)
- n Co-chair of the 2013 MICCAI workshop and tutorial committee (Nagoya, Japan)
- n Program committee member of SPIE Medical Imaging conference (Visualization, Image-Guided Procedures, and Display) from 2005, MICCAI conference from 2011, and Medicine Meets Virtual Reality (MMVR) conference from 2011.
- n Member of the committee for patents and technological transfer at the University of Rennes 1 from 2002 to 2012

SELECTION OF THE 5 MOST REPRESENTATIVE PUBLICATIONS

- Germain Forestier, Florent Lalys; Louis Collins; Jurgen Meixensberger; Shafik Wassef; Thomas Neumuth; Benoit Goulet; Laurent Riffaud; **Pierre Jannin**, Multi-site study of surgical practice in neurosurgery based on Surgical Process Models, *Journal of Biomedical Informatics*, 2013, Oct;46(5):822-9
- **Jannin P.**, Grova C., Maurer C.. Model for designing and reporting reference based validation procedures in medical image processing. *Int Journ. Comput. Assisted Radiol and Surg.* 2006 1(2)2:1001-115
- Paul P, Fleig O and **Jannin P.** Augmented Virtuality based on Stereoscopic Reconstruction in Multimodal Image-Guided Neurosurgery: Methods and Performance Evaluation, *IEEE Transactions on Medical Imaging*, Special Issue on Intra-Operative Image Processing for Surgical Guidance, July 2005, 24(11), pp 1500-1511.
- **Jannin P**, Raimbault M, Morandi X, Riffaud L and Gibaud B. “Modelling Surgical Procedures for Multimodal Image-Guided Neurosurgery”. *Journal of Computer Aided Surgery*, 2003;8(2):98-106.
- **Jannin P**, Morandi X, Fleig OJ, Le Rumeur E, Toulouse P, Gibaud B and Scarabin JM. « Integration of sulcal and functional information for multimodal neuronavigation”, *Journal of Neurosurgery*, 2002;96:713-723.

AWARDS

- 2015: Best paper award at Artificial Intelligence in Medicine Europe conference (AIME) Avia, Italy June 2015 "Optimal sub-sequence matching for the automatic prediction of surgical tasks"

- 2014: Best paper award CARS 2014 international conference: D'Albis T, Haegelen C, Essert C, Fernández-Vidal S, Lalys F, **Jannin P.**, PyDBS: an automated image processing workflow for deep brain stimulation surgery. *Int J Comput Assist Radiol Surg.* 2014 May 6. PMID: 24799270
- 2013: Best research project award at “Loading the future” Pole de compétitivité AcouStiC project

Teaching activities

	Manager of a lecture unit in M.Sc. 2 Signal and Images in Biology and Medecine on “Image Guided Surgery” One week per year :
From 2006	“Image-Patient registration: methods and validation” 3h “Surgical process models” 3h “Intraoperative visualization” 3h
From 2008	Manager of a lecture unit in M.Sc. Signal and Images in Biology and Medecine on “Basis on Image processing” 30 hours per year
From 2014	“Image guided neurosurgery and neuroimaging” for Excellence Courses at CominLabs (4h)
2006-2000	M.Sc. Signal and Images in Biology and Medecine « 3D Visualization in medical imaging » 2h per year
2006-2002	M.Sc. Signal and Images in Biology and Medecine « Validation in medical image processing » 2h per year
2008-2001	Professor at the European School of Medical Physics (Archamps, France) « Data fusion in medical imaging : Methods, applications and validation », 3h per year
2003-1999	M.Sc. Biological and Medical Science « 3D display and data fusion » 4 h per year
2002-1999	DES/DIS X Ray technology and radioprotection « 3D display», 2h. per year
2004-1994	School of Medical Electroradiology at Pontchaillou Hospital Rennes « Data fusion in medical imaging » 2h per year, « 3D display», 5 h per year

Ph D and M Sc Student Supervision

Ph D	<ul style="list-style-type: none">• Current: O. Dergachyova (2014-2017), P.L. Henaux (2015-2018), F. Monge (2012-2015), F. Despinoy (2013-2015): Co supervision with LIRRM (Montpellier, France), Huaulme A., (2013-2016): Co supervision with TIMC-IMAG (UJF Grenoble)• Previous: D. Bouget (2012-2015), C. Haegelen (2009-2014), L. Riffaud (2009-2012), Laly F. (2009-2012), Trelhu B. (2007-2011), Neumuth T. (2005-2009): Co supervision with Leipzig University (D), Grunert R. (2005-2008): Co supervision with Leipzig University (D), Paul P (2003-2006), Raimbault M (2001-2004), Broche B (2000-2004), Grova C (1999-2002), Fleig O (1999-2002)
M Sc	> 25 students from : M. Sc. STIR “Signal Processing and Telecommunications”, M. Sc. SIBM “Signal and Images in Biology and Medicine ”, M. Sc. “Statistics” Paris VII, M. Sc. « Computer Science », UT de Compiègne, Institut Supérieure d'Electronique de Paris, IFSIC de Rennes , ...
PhD defense	Daga P. (University College of London, Great Britain) Avril 2014, Shakir D. (Technische Universitat Munchen, Germany) Mars 2014, Banihachemi JJ. (Université de Grenoble) Octobre 2013, Sanches R. (Université de Montpellier) Aout 2013, Wolf R. (Université de Grenoble) Juin 2013, Caire F. (Université de Bordeaux) Décembre 2012, Bigdelou A. (Technische Universitat Munchen, Germany) November 2012, Zhang-Ge L. (Université d’Angers) November 2012, Malarne P. (Université Libre de Bruxelles) October 2011, Teodorescu R. (Université de Besançon) April 2011, Verscheure L. (Université de Lille) October 2010, Vigneron L. (Université Liège, Belgique) February 2009, Wannous (Université de Poitiers) December 2008, Traub J. (Technische Universitat Munchen, Germany) November 2008, Gorges S. (INRIA – Université de Nancy) May 2007, Voros S. (Université Pierre et Marie Curie) December 2006
Habilitation defense	Vermandel M. (Université Lille 2) Septembre 2013, Essert C. (Université Louis Pasteur de Strasbourg) September 2011

Scientific societies

From June 2014	President of the International Society for Computer Aided Surgery (ISCAS)
From Feb 2014	Board member of the MICCAI Society

2004-June 2014 General secretary of the International Society for Computer Aided Surgery (ISCAS)

Memberships ISCAS, MICCAI, IEEE, SPIE (senior member), CRITT Santé Bretagne

Publications

Original publications in peer-reviewed journals

• 2016

1. M. Uemura, P. **Jannin**, M. Yamashita, M. Tomikawa, M. Hashizume, Procedural surgical skill assessment in laparoscopic training environments *Int J Comput Assist Radiol Surg.* 2016 Apr;11(4):543-52
2. Dergachyova O, Bouget D, Hualmé A, Morandi X, **Jannin P.**, Automatic data-driven real-time segmentation and recognition of surgical workflow. *Int J Comput Assist Radiol Surg.* 2016 PMID: 26995598
3. Sauleau P, Drapier S, Duprez J, Houvenaghel JF, Dondaine T, Haegelen C, Drapier D, **Jannin P**, Robert G, Le Jeune F, Vérin M. Weight Gain following Pallidal Deep Brain Stimulation: A PET Study. *PLoS One.* 2016 Apr 12;11(4)
4. Ory S, Le Jeune F, Haegelen C, Vicente S, Philippot P, Dondaine T, **Jannin P**, Drapier S, Drapier D, Sauleau P, Vérin M, Péron J. Pre-frontal-insular-cerebellar modifications correlate with disgust feeling blunting after subthalamic stimulation: A positron emission tomography study in Parkinson's disease. *J Neuropsychol.* 2015 Dec 16. doi: 10.1111/jnp.12094
5. Despinoy F, Bouget D, Forestier G, Penet C, Zemiti N, Poignet P, **Jannin P.** *IEEE Trans Biomed Eng.* 2016 PMID: 26513773

• 2015

6. Bouget, D.; Benenson, R. ; Omran, M. ; Riffaud, L. ; Schiele, B. ; **Jannin, P.** Detecting surgical tools by modelling local appearance and global shape *IEEE Transactions on Medical Imaging* 2015 Dec;34(12):2603-17
7. Essert C, Fernandez-Vidal S, Capobianco A, Haegelen C, Karachi C, Bardinet E, Marchal M, **Jannin P.** Statistical study of parameters for deep brain stimulation automatic preoperative planning of electrodes trajectories. *Int J Comput Assist Radiol Surg.* 2015 Dec;10(12):1973-83
8. Machno A, **Jannin P**, Dameron O, Korb W, Scheuermann G, Meixensberger J. Ontology for assessment studies of human-computer-interaction in surgery. *Artif Intell Med.* 2015 Feb;63(2):73-84
9. Morineau T, Riffaud L, Morandi X, Villain J, **Jannin P.** Work domain constraints for modelling surgical performance. *Int J Comput Assist Radiol Surg.* 2015 Oct;10(10):1589-97
10. Langner-Lemercier S, Drapier S, Naudet F, Le Clanche N, Houvenaghel JF, Sauleau P, **Jannin P**, Haegelen C, Le Jeune F, Vérin M. Preoperative brain metabolism and quality of life after subthalamic nucleus stimulation in Parkinson's disease. *J Neurol.* 2015 Apr;262(4):881-9
11. D'Albis T, Haegelen C, Essert C, Fernández-Vidal S, Lalys F, **Jannin P.**, PyDBS: an automated image processing workflow for deep brain stimulation surgery. *Int J Comput Assist Radiol Surg.* 2015 Feb;10(2):117-28
12. Katic D, Julliard C, Wekerle A, Kenngott H, Müller-Stich B, Dillmann R, Speidel S, **Jannin P**, Gibaud B. Lapontospm - an Ontology for Laparoscopic Surgeries and Its Application to Surgical Phase Recognition. *Int J Computer Assisted Radiology and Surgery.* 2015. 2015 Sep;10(9):1427-34
13. Forestier G, Riffaud L, **Jannin P.** Automatic phase prediction from low-level surgical activities. *Int J Comput Assist Radiol Surg.* 2015 Jun;10(6):833-41

• 2014

14. Forestier G, Petitjean F, Riffaud L, **Jannin P.** Non-linear temporal scaling of surgical processes. *Artif Intell Med.* 2014 Nov;62(3):143-52
15. Yiming Xiao, **Pierre Jannin**, Tiziano D'Albis, Nicolas Guizard, Claire Haegelen, Lalys Florent, Marc Verin, D. Louis Collins, Investigation of morphometric variability of subthalamic nucleus, red nucleus and substantia nigra in advanced Parkinson's disease patients using automatic segmentation and PCA-based analysis, *Human Brain Mapping*, 2014 35(9):4330-44
16. Estelle Michinov, Eric Jamet, Virginie Dodeler, Claire Haegelen, **Pierre Jannin** Assessing Neurosurgical Non-Technical Skills: An exploratory study of a new behavioral marker system, *Journal of Evaluation in Clinical Practice*, 2014, 20(5): 582-588
17. L. Maier-Hein, A. Groch, A. Bartoli, S. Bodenstedt, G. Boissonnat, P.-L. Chang, N. T. Clancy, D. S. Elson, S. Haase, E. Heim, J. Hornegger, **P. Jannin**, H. Kenngott, T. Kilgus, B. Müller-Stich, D. Oladokun, S. Röhl, T. R. dos Santos, H.-P. Schlemmer, A. Seitel, S. Speidel, M. Wagner, and D. Stoyanov, Comparative Validation of Optical Techniques for Laparoscopic 3D Surface Reconstruction, *IEEE Transactions on Medical Imaging* 2015 Oct;33(10):1913-30

18. Florent Lalys, Claire Haegelen, **Pierre Jannin**, Analysis of electrode deformations in Deep Brain Stimulation surgery, *International Journal of Computer Assisted Radiology and Surgery*, 2014, Jan;9(1):107-17
19. Florent Lalys, **Pierre Jannin**, Surgical Process Modelling: a review, *International Journal of Computer Assisted Radiology and Surgery*, 2014 May;9(3):495-511

- 2013

20. Germain Forestier, Florent Lalys; Louis Collins; Jurgen Meixensberger; Shafik Wassef; Thomas Neumuth; Benoit Goulet; Laurent Riffaud; **Pierre Jannin**, Multi-site study of surgical practice in neurosurgery based on Surgical Process Models, *Journal of Biomedical Informatics*, 2013, Oct;46(5):822-9
21. J.C. Gentric, **P. Jannin**, B. Trelhu, L. Riffaud, H. Raoult, J.C. Ferré, J.Y. Gauvrit "Effects of low dose protocols in endovascular treatment for intracranial aneurysms: Development of Workflow Task Analysis during Cerebral Endovascular Procedures", *American Journal of Roentgenology*, 2013, Aug;201(2):W322-5
22. Marta Kersten-Oertel, **Pierre Jannin**, D. Louis Collins, The State of the Art of Visualization in Mixed Reality Image Guided Surgery, *Computerized Medical Imaging and Graphics* 2013 (accepted)
23. Jean Christophe Gentric, Brivael Trelhu, **Pierre Jannin**, Laurent Riffaud, Jean-Christophe Ferré, Jean-Yves Gauvrit, Development Of Workflow Task Analysis during Cerebral Diagnostic Angiographies; Time-Based Comparison of Junior and Senior Tasks. *Journal of Neuroradiology* , 2013, Dec;40(5):342-7
24. Lalys F, Bouget D, Riffaud L, **Jannin P.**, Automatic knowledge-based recognition of low-level tasks in ophthalmological procedures., *Int J Comput Assist Radiol Surg.* (2013) 8: 39-49.
25. Haegelen C, Coupé P, Fonov V, Guizard N, **Jannin P**, Morandi X, Collins DL.. Automated segmentation of basal ganglia and deep brain structures in MRI of Parkinson's disease., *Int J Comput Assist Radiol Surg.* (2013) 8: 99-110
26. Morineau T, Morandi X, Le Moëllic N, **Jannin P.**, A cognitive engineering framework for the specification of information requirements in medical imaging: application in image-guided neurosurgery. *Int J Comput Assist Radiol Surg.* 2013 Mar;8(2):291-300
27. Cristian A. Linte, Katherine P. Davenport, Kevin Cleary, Craig Peters, Kirby G. Vosburgh, Nassir Navab, Philip Eddie Edwards, **Pierre Jannin**, Terry M. Peters, David R. Holmes III, and Richard A. Robb, On mixed reality environments for minimally invasive therapy guidance: Systems architecture, successes and challenges in their implementation from laboratory to clinic, *Computerized Medical Imaging and Graphics* 2013 Mar;37(2):83-97

- 2012

28. Lalys F, Haegelen C, Mehri M, Drapier S, Vérin M, **Jannin P.** Anatomic-clinical atlases correlate clinical data and electrode contact coordinates: Application to subthalamic deep brain stimulation., *J Neurosci Methods.* 2012, 212(2):297-307
29. Lalys F, Riffaud L, Bouget D, **Jannin P.** A framework for the recognition of high-level surgical tasks from video images for cataract surgeries. *IEEE Trans Biomed Eng.* 2012, 59(4):966-76
30. Forestier G.; Lalys F. ; Riffaud L.; Trelhu B.; **Jannin P.** Classification of Surgical Processes using Dynamic Time Warping, *Journal of Biomedical Informatics*, 2012, 45, pp. 255-264.
31. Neumuth T., Loebe F., **Jannin P.** Similarity Metrics for Surgical Process Models. *Artificial Intelligence in Medicine*, 2012 Jan;54(1):15-27.
32. **Jannin P.** Validation in medical image processing: Methodological issues for proper quantification of uncertainties. *Current Medical Imaging Reviews*, 8(4), 2012 , pp. 322-330(9)
33. Kersten-Oertel M, **Jannin P**, Collins DL., DVV: A Taxonomy for Mixed Reality Visualization in Image Guided Surgery. *IEEE Trans Vis Comput Graph.* 2012 18 (2): 332–52.
34. Essert, C., Haegelen C., Lalys F., Abadie A. and **Jannin P.** Automatic computation of electrode trajectories for Deep Brain Stimulation: a hybrid symbolic and numerical approach. *Int J Comput Assist Radiol Surg.* (2012) 7: 517-532

- 2011

35. de Guibert C., Maumet C., **Jannin P.**, Ferre J. C., Treguier C., Barillot C., Le Rumeur E., Allaire C., Biraben A. Abnormal functional lateralization and activity of language brain areas in typical specific language impairment (developmental dysphasia). *Brain.* 2011, 134(Pt10): 3044-58
36. Neumuth T., **Jannin P.**, Schlomberg J., Meixensberger J., Wiedemann P., Burgert O. Analysis of surgical intervention populations using generic Surgical Process Models, *Int Journ. Comput. Assisted Radiol and Surg.* 2011 Jan;6(1):59-71.

• 2010

37. Riffaud L., Neumuth T., Morandi X., Trantakis C., Meixensberger J., Burgert O., Trelhu B., **Jannin P.**, Recording of surgical processes: a study comparing senior and junior neurosurgeons during lumbar disc herniation surgery, *Neurosurgery*, 2010, 67(2):325-332.
38. Lalys F., Haegelen C., Ferre J.C., El-Ganaoui O., **Jannin P.**, Construction and assessment of a 3T MRI brain template, *NeuroImage*, 2010, 49(1):345-354.
39. de Guibert C., Maumet C., Ferre J.C., **Jannin P.**, Biraben A., Allaire C., Barillot C., Le Rumeur E., FMRI language mapping in children: A panel of language tasks using visual and auditory stimulation without reading or metalinguistic requirements, *NeuroImage*, 2010, 51(2):897-909.
40. Duhamel B., Ferre J. C., **Jannin P.**, Gauvrit J. Y., Verin M., Millet B., Drapier D., Chronic and treatment-resistant depression: A study using arterial spin labeling perfusion MRI at 3Tesla, *Psychiatry Res*, 2010, 182(2):111-6.
41. Grunert R., Korb W., **Jannin P.**, Dengl M., Mockel H., Neumuth T., Strauss G., Trantakis C., and Meixensberger, J., Systematic user-based assessment of Navigated Control Spine, *Biomedizinische Technik. Biomedical engineering Biomed Tech*, 2010, (Berl). 55(6):351-359

1.

• 2009

42. Paul P., Morandi X., **Jannin P.**, A Surface Registration Method for Quantification of Intraoperative Brain Deformations in Image-Guided Neurosurgery, *IEEE Trans on Information Technology in BioMedicine*, 2009, 13(6):976-983.
43. Morineau T., Morandi X., Le Moellic N., Diabira S., Riffaud L., Haegelen C., Henaux PL., **Jannin P.**, Decision Making During Preoperative Surgical Planning, *Human Factors: The Journal of the Human Factors and Ergonomics Society*, 2009; 51: 67-77.
44. Neumuth T., **Jannin P.**, Strauss G., Meixensberger, Burgert O. Validation of Knowledge Acquisition for Surgical Process Models, *Journal of the American Medical Informatics Association*, 2009 Jan-Feb;16(1):72-80.

• 2008

45. Duchesne S., **Jannin P.** Proposing a manuscript peer-review checklist, *NeuroImage*, 2008, 39(4):1783-7.

• 2007

46. **Jannin P.**, Morandi X. Surgical models for computer-assisted neurosurgery, *NeuroImage* 2007, 3(37) :783-791.

• 2006

47. **Jannin P.**, Grova C., Maurer C.. Model for designing and reporting reference based validation procedures in medical image processing. *Int Journ. Comput. Assisted Radiol and Surg.* 2006 1(2):1001-115

• 2005

48. Haegelen C, Verin M, Broche BA, Prigent F, **Jannin P**, Gibaud B, Morandi X. Does subthalamic nucleus stimulation affect the frontal limbic areas? A single-photon emission computed tomography study using a manual anatomical segmentation method. *Surg Radiol Anat.* 2005 Sep 14;1-6
49. Paul P, Fleig O and **Jannin P**. Augmented Virtuality based on Stereoscopic Reconstruction in Multimodal Image-Guided Neurosurgery: Methods and Performance Evaluation, *IEEE Transactions on Medical Imaging*, July 2005, 24(11), pp 1500-1511.
50. Aubert-Broche B, **Jannin P**, Biraben A, Bernard AM, Haegelen C, Prigent-Lejeune F, and Gibaud B. Evaluation of intra-scan intra-subject interhemispheric asymmetry detection methods in brain SPECT - application in epilepsy. *Journal of Nuclear Medicine*, 2005 Apr;46(4):707-713.
51. Grova C, **Jannin P**, Buvat I, Benali H, Bansard JH, Biraben A, and Gibaud B. From anatomic standardization analysis of perfusion SPECT data to perfusion pattern modelling: evidence of functional networks in healthy subjects and temporal lobe epilepsy patients. *Academic Radiology*, 2005 May;12(5):554-65.

• 2003

52. Grova C, **Jannin P**, Biraben A, Buvat I, Benali H, Bernard AM, Scarabin JM and Gibaud B. A methodology for generating normal and pathological brain perfusion spect images for evaluation of mri/spect fusion methods: application in epilepsy. *Phys. Med. Biol.*, 2003;48(24):4023-4043.

53. **Jannin P**, Raimbault M, Morandi X, Riffaud L and Gibaud B. Modeling Surgical Procedures for Multimodal Image-Guided Neurosurgery, *Journal of Computer Aided Surgery*, 2003;8(2):98-106.
54. Aubert-Broche B, Grova C, **Jannin P**, Buvat I, Benali H and Gibaud B. Detection of inter- hemispheric asymmetries of brain perfusion in SPECT, *Phys. Med. Biol.*, 2003;48(11):1505-1517.
55. Toulouse P, Agulhon C, Taussig D, Napuri S, Biraben A, **Jannin P**, Carsin M and Scarabin JM. Magnetoencephalographic studies of two cases of diffuse subcortical laminar heterotopia or so-called double cortex, *Neuroimage*, 2003;19(4):1251-9.
- 2002
56. **Jannin P**, Morandi X, Fleig OJ, Le Rumeur E, Toulouse P, Gibaud B and Scarabin JM. Integration of sulcal and functional information for multimodal neuronavigation, *Journal of Neurosurgery*, 2002;96:713-723.
- 2001
57. **Jannin P**, Seigneuret E, Morandi X, Fleig OJ, Riffaud L, Le Goualher G, Brassier G and Scarabin JM. Guidage sulcal en neuro-navigation dans la chirurgie des cavernomes supratentoriels, *Neurochirurgie*, 2001;46(6):534-540.
58. **Jannin P**, Grova C and Gibaud B. Fusion de données en imagerie médicale: une revue méthodologique basée sur le contexte clinique“, *ITBM-RBM Innovation et technologie en biologie et médecine*, 2001 ;22(4) :196-215.
- 2000
59. **Jannin P**, Fleig OJ, Seigneuret E, Grova C, Morandi X and Scarabin JM. A Data Fusion Environment for Multimodal and Multi-Informational Neuro-Navigation, *Journal of Computer Aided Surgery*, 2000;5(1):11-17.
60. Le Rumeur E, Allard M, Poiseau E and **Jannin P**. Role of the fMRI sensory stimulation type for the understanding of normal and lesional cortex connections for presurgical brain mapping, *Journal of Neurosurgery*, 2000;93:427-431.
- Before ...
61. **Jannin P**, *et al.* A Ray traced Texture Mapping for Enhanced Virtuality in Image Guided NeuroSurgery. Health Care in the Information Age : Future Tools for Transforming Medicine, Study in Health Technology and Informatics, Vol. 29, IOS Press, Amsterdam, Janv 1996, pp 553-563.
62. **Jannin P**, Prévost G, Le Noach R and Coatrieux JL. Conception d'architectures spécialisées pour des stations de travail interactives à base d'octrees en imagerie médicale, *Revue Innovation Technologique en Biologie et Médecine*, 1991;12(2):223-232.
- Editorials in international peer reviewed journals
 - 2013
63. Fourth International Conference, IPCAI 2013, Heidelberg, Germany, June 26, 2013, Proceedings Series: Lecture Notes in Computer Science, Vol. 7915, Subseries: Image Processing, Computer Vision, Pattern Recognition, and Graphics, Barratt, D.; Cotin, S.; Fichtinger, G.; **Jannin, P.**; Navab, N. (Eds.) 2013, X, 111 p.
- 2012
64. Lemke H., Vannier M., Cleary K, **Jannin P**. CARS 2012: Computer Assisted Radiology and Surgery - Proceedings of the 26th International Congress and Exhibition Pisa, Italy, June 27 - 30, 2012, Springer, Volume 7, Supplement 1 / juin 2012
65. Third International Conference, IPCAI 2012, Pisa, Italy, June 27, 2012, Proceedings Series: Lecture Notes in Computer Science, Vol. 7330, Subseries: Image Processing, Computer Vision, Pattern Recognition, and Graphics, Abolmaesumi, P.; Joskowicz, L.; Navab, N.; **Jannin, P.** (Eds.) 2012, 2012, XIII, 180 p.
- 2006
66. **Jannin P**, Krupinski E, Warfield S. Validation in medical image processing. *IEEE Trans Med Imaging*. 2006 Nov;25(11):1405-9.
67. **Jannin P**, Cleary K, Joskowicz L. ISCAS at CARS 2006. *Comput Aided Surg*. 2006 May;11(3):107-8

· 2002

68. **Jannin P**, Fitzpatrick JM, Hawkes DJ, Pennec X, Shahidi R and Vannier MW. Editorial: Validation of Medical Image Processing in Image-Guided Therapy, *IEEE Transactions on Medical Imaging*, 2002;21(11):1445-1449.

· *Book chapters*

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- **Technological transfert and industrial collaboration**

- *Software protected at APP*

- pyDBS (2013) IDDN.FR.001.490012.000.S.P.2013.000.31230
- Park-MedAtlas (2014) IDDN.FR.001.440011.000.D.P.2014.000.31230
- ProcSide (Surgical Process Modeling Acquisition software): 2012
- Vignes (image guided neurosurgery): 2008
- SIM3D (3D visualization), SIMMORPHO (segmentation), SIMAP (registration and visualization of both pre and intra operative images), SIMIV (display and interaction in medical imaging) : 1997,1998

- *Grants*

Industrial collaboration and grants :

- Carl Zeiss : 4 3-year PhD fundings:1998, 2001, 2009, 2012
- Medtronic SNT : 1 Ph D funding in 2003
- Adicor Rennes : 1 M Sc funding

Public grants :

- National “Investissement d’Avenir” IRT B-COM (2013-2016)
 - National “Investissement d’Avenir” LabEX CominLabs on Surgical Process Modeling (2013-2016)
 - National ANR “Projet blanc” on Planning for Deep Brain Stimulation (2011-2014)
 - ODL INRIA for software development in Image Guided Neurosurgery (2008-2010)
 - Projet de Recherche d’Intérêt Régional « PlogICI » (2004-2006)
 - RNTS « Plamaivic » (2002-2004) : Validation on medical image processing
 - Région Bretagne on multimodal neuronavigation (99-00)
- *Development of medical applications used in clinical routine*

Design and development of image guided neurosurgery systems used at the Neurosurgery department of Rennes’s hospital (France),

- Unix software for 3D MR and CT image guided stereotactic biopsies used from 1993 until 2003,
- Unix software for 3D MR image guided depth electrodes implantation (SEEG) used from 1995,
- Multimodal neuronavigation (planning and surgery) used from 2000

- **Scientific animation**

- *Invited lectures*

- 2015

162. « Model Guided Surgery » International Joint Conference on Medical Innovation, 4th International Workshop of HALIDAT-GC, 2nd International Symposium of WaFLES, Chiba University, Chiba (Japan), 06/03/2015

163. « Models for Surgical Assistance and Evaluation: Applications in Neurosurgery » Seminar at Université de Montpellier 2, LIRRM, Montpellier (France), 18/03/2015

- 2014

164. «Modélisation des Processus Chirurgicaux: *Surgical Process Modelling*» GDR STIC-Santé, GT «Modélisation et Simulation, Paris (F) 05/06/2014

165. « Surgical Skill Models for Computer Assisted Surgery » SINTEF and Dept. of Medical Technology, NTNU (Université Technologique de Trondheim), Trondheim (N), 21/05/2014

166. « Images et modèles pour assister la préparation et l’évaluation de la stimulation cérébrale profonde : le projet ACouStiC » TECHNOFERENCE # 8 E-Santé, Pole de compétitivité Images et Réseaux, Laval (F) 27/02/2014

- 2013

167. « Surgical Skill Models for Computer Assisted Surgery » Hamlyn Distinguished Lecture Series, The Hamlyn Centre, Imperial College London (UK), 26/11/2013

168. « Surgical Skill Models in Computer Assisted Surgery » MITI, Klinikum rechts der Isar Technische Universität München, Munich (Germany), 20/11/2013

169. « Models for Surgical Assistance and Evaluation » IRCAD, Strasbourg (France), 08/11/2013

170. « Modélisation des Compétences Chirurgicales » CGEJET, Ministère de l’industrie, Paris (France), 09/10/2013

171. « Surgical Process Modeling for Intelligent CAI: Methods and Applications » Invited talk at The 6th International Workshop on Medical Imaging and Augmented Reality, MIAR 2013, Nagoya, Japan September 22 2013

172. « Introduction to Workflow Modeling » International Conference of Computer Assisted Radiology and Surgery, Heidelberg (Allemagne), 27/06/2013

173. « Models for Surgical Assistance and Evaluation: Applications in Neurosurgery » Seminar at Kyushu University, Fukuoka (Japan), 05/06/2013
174. “Surgical Process Modeling“ Conference Medicine Meets Virtual Reality, Newport Beach (USA), February 2013
175. “Surgical Process Modeling: Methods And Applications “ Scuola Di Dottorato In Scienze Della Vita E Della Salute, Dottorato In Tecnologie Applicate Alle Scienze Chirurgiche, University Of Torino, February 1st 2013

• 2012

176. “Surgical Process Modeling: Where are we ? Where do we go ?“ ICCAS Leipzig Forum CAS, Leipzig, Germany, October 8 2012
177. “Knowledge Models for Deep Brain Stimulation” First International Symposium on Deep Brain Connectomics, Clermont-Ferrand, France, September 28-29 2012
178. “Model Based Computer Assisted Surgery: A New Paradigm for Surgical Decision Making Support” Invited Plenary Talk at "51st Annual Conference of Japanese Society for Medical and Biological Engineering, Fukuoka, Japan, May 12th, 2012
179. “Surgical Process Modeling: Methods and Applications“ First International Workshop on Cognitive Robotics in Surgery, Heidelberg, Germany, January 26-28 2012

• 2011

180. “Assessment methodology in computer assisted surgical interventions “ Conference Medicine Meets Virtual Reality, Newport Beach (USA), February 2011
181. “Surgical Process Models” European Science Foundation Exploratory Workshop on IMAGE-GUIDED LAPAROSCOPIC THERAPIES, June 15th, Caceres (Spain)
182. “Management and Assessment of OR Systems Integration via Surgical Process Models » 1st Educational Course on Computer Surgery MICARS, October 20-21, 2011, Barcelona (Spain)

• 2010

183. “Model Guided Neurosurgery” Joint Technical Lecture, IEEE EMB/RA/CS Societies Chapter of IEEE Kingston Section and School of Computing PerLab at Queen's University, Kingston, Ontario, Canada, July 14, 2010
184. “Model Guided Neurosurgery” Thayer School of Engineering, Dartmouth College, Hanover, NH, USA, March, 5th, 2010
185. “ An Introduction to Surgical Process Modeling” Montreal Neurological Institute, Montreal, Canada, February, 2nd, 2010

• 2009

186. “ Models in Deep Brain Stimulation” Montreal Neurological Institute, Montreal, Canada, November 2009
187. “ Models in Computer Assisted Neurosurgery” 2nd INRIA-NIH Biomedical Computing Workshop, Paris

• 2008

188. “Model Guided Therapy” Computer Assisted Radiology and Surgery. June 25, 2008, Barcelona (E)

• 2007

189. “Model guided Surgery” and “Validation in medical image processing” Montreal Neurological Institute, Montreal, Canada, July 2007
190. “Modeling surgical procedures”. Workshop on Surgical Workflows, Computer Assisted Radiology and Surgery. Saturday, June 30, 2007, Berlin (D)

• 2006

191. “Models of surgical procedures in Computer Assisted NeuroSurgery”, IST 2006, November 22, Helsinki
192. “From intuitive to scientific computer assisted neurosurgery”. Computer Assisted Radiology and Surgery. Saturday, July 1, 2006, Osaka (J)

193. "Validation of Medical Image Processing". Joint Workshop on Intelligent Media Integration and Nagoya-MIC. Tuesday, July 4, 2006, Nagoya (J)
 194. "Information Guided Neurosurgery: From Multimodal Images to Surgical Knowledge". Joint Workshop on Intelligent Media Integration and Nagoya-MIC. Tuesday, July 4, 2006, Nagoya (J)
 195. "Models of surgical procedures in computer assisted neurosurgery". Annual Meeting of the International Brain Mapping and Intra operative Surgical Planning Society, Clermont Ferrand (F) Thursday, September 7, 2006
 196. Processus neurochirurgical assisté par l'information et la connaissance. 13emes Rencontres INRIA – Industrie. Les Sciences et Technologies de l'Information et de la Communication au service de la Médecine. Rocquencourt, 24 janvier 2006
 197. La Neurochirurgie Assistée par l'Information et la Connaissance : Arguments pour la modélisation des procédures, Société Française de Neurochirurgie, Meeting of the French neurological surgeons College, 29 Mars 2006 Caen
 - 2005
 198. "From Intuitive to Scientific Computer Assisted Surgery". 4th Leipzig Forum CAS, December 12th, 2005, Leipzig (D)
 199. "Validation of medical image processing for computer aided surgery: terminology and methodology", Eight Israeli Symposium on Computer-Aided Surgery, Medical Robotics, and Medical Imaging (ISRACAS), Thursday May 19, 2005, Medical Center Auditorium, Rabin Medical Center (Bellinson) Petach Tikva, ISRAEL
 - 2004-2003
 200. « Fusion d'images réelles et virtuelles en neurochirurgie » Atelier des Technologies de l'Information et de la Communication (TIC) et de la Santé, 14 septembre 2004, ESIEA, Laval, France
 201. « Validation in Medical Image Processing » 2nd Forum « Computer und Roboter-Assistierte Chirurgie », Leipzig, 13-14 october 2003
 202. « Validation of image processing in image guided therapy » at the international session of the German Congress for Computer Assisted Surgery, CURAC 2003, Nuremberg, November 2003
 203. « Principes du recalage d'images et introduction à la fusion », French Forum on Research in Medical Imaging, Journées de Recherche en Imagerie Médicale, Forum des Jeunes Chercheurs en GBM, INSERM, Nantes, May 2003
 204. « Validation en traitement d'images médicales » Action Spécifique du CNRS ICOMIM « Intégration de Connaissances et Modélisation en Imagerie Médicale », Paris, June 2003
 - Before
 205. « Image Guided Surgery in France» British Congress of Radiology. UK Radiological Congress, Birmingham, UK, June 2002
 206. « Image Guided Surgery in France and in Rennes», Deutsches Krebsforschungszentrum DKFZ (German Cancer Research Center), Heidelberg, Germany, October 2002
 207. « MEG, Data Fusion and Neurosurgery: Rennes approach », European Workshop on MEG and EEG, Erlangen, Germany, May 1999
 208. « Multimodal data fusion in medical imaging », 14th Symposium of the BVZF/SBPH, Bruges, Belgium, October 1998
 209. « Fusion de données multimodalité en imagerie médicale », Congrès de Radiophysique, Lille, January 1997
- *Multicenter projects*
 - Manager of the validation part for image registration in the national RNTS "Plamaivic" project (2002-2004)
 - *Organization of workshops/ conferences (non exhaustive):*
 - Co-General chair of the IPCAI from 2010 international conferences (LNCS proceedings)
 - Congress Organizing and Program Committee member of Computer Assisted Radiology and Surgery from 2005
 - Co-chair of the 2013 MICCAI workshop and tutorial committee (Nagoya, Japan)
 - Organization, management and co-chair of "1st ISCAS SURGICAL WORKSHOP ON COMPUTER-AIDED ENT AND MAXILLOFACIAL SURGERY"(CME credits) at CARS 2009 in Berlin (D)

- Organization, management and co-chair of “2nd ISCAS SURGICAL WORKSHOP ON NeuroSURGERY”(CME credits) at CARS 2010 in Geneva
- Organization, management and presentation of a workshop (2 hours) on “Validation in medical image registration” at SPIE Medical Imaging 2007 conference in San Diego
- Organization, management and co-chair of “Modeling and Monitoring of Computer Assisted Interventions (M2CAI)” at MICCAI, September 20th 2009, London (GB)
- General chair of “Modeling and Monitoring of Computer Assisted Interventions (M2CAI)” at MICCAI, September 20th 2011, Toronto (CAN)
- Co chair of “Modeling and Monitoring of Computer Assisted Interventions (M2CAI)” at MICCAI from 2012
- Program Committee member of SPIE Medical Imaging and Medicine Meets Virtual Reality (MMVR) conference
- Program Committee member of ICS4Med 2011 - 1st International Workshop on Interactive Computing Systems for Medicine and Health Care

Journals

- Area editor of “International Journal for Computer Aided Radiology and Surgery” (Springer)
- Editorial board member of “Computer Aided Surgery” (Informa publisher)
- Reviewer and associate editor for IEEE Transactions on Medical Imaging, IEEE Engineering in Medicine and Biology, IEEE Transactions in Information Technology in Biomedicine, Medical Image Analysis, Academic Radiology, American Journal of NeuroRadiology, Neuroimage, IEEE Transactions in Biomedical Engineering, IMIA Yearbook of Medical Informatics and for international conferences CARS, SPIE Medical Imaging, MICCAI, Asian Conference on Computer Vision (ACCV), and IPCAI

Miscellaneous

- SPIE courses: “Validation in Medical Image Processing” SPIE 2008, 2009 and 2010 at SPIE Medical Imaging San Diego-Orlando (USA)
- Tutorial at Computer Assisted Radiology and Surgery. “Tutorial on Assessment of Medical Image Processing for CAS - Validation in Medical Image Processing Tools for CAS” 2008, Barcelona (E), 2009, Berlin (D), 2010 Geneva, 2011 Berlin (D)
- Management and Chair of 4 special sessions on Validation in Medical Image Processing at the CARS conference Computer Assisted Radiology and Surgery (CARS 2002 Paris, CARS 2003 London, CARS 2004 Chicago, CARS 2005 Berlin)
- Organization, management and presentation of a tutorial (4 hours) on Validation in medical image processing at MICCAI 2003 conference in Montreal
- Member of the patent and technological transfer committee of the University of Rennes from 2002

Project reviews

- Expert for a working group on new neurosurgical procedures accreditation at the ANAES governmental organization. Paris, May 2004
- Expert for ANR Call “Technologies pour la Santé” 2007
- Expert for ANR Call “Blanc” 2011
- Expert for Région Rhone-Alpes 2012
- Expert for BPI France 2014

Large-public Communication

Media coverage

1. « Immersion au coeur de la réalité mixte », Sciences et Avenir, March 2016
2. « Neurochirurgie assistée par ordinateur », Ouest-France, March 2016
3. « Neurochirurgie guidée en 3D », Rennes Métropole, Feb-March 2016
4. « Têtes chercheuses - Pierre Jannin: Créateur d’outils “intelligents” pour les neurochirurgiens », Sciences et Santé, Nov. 2014

Invited talks

1. « Immersion au coeur de la réalité mixte », Sciences et Avenir, March 2016