



Christian Barillot

Curriculum Vitae

SITUATION

Web: <https://www.irisa.fr/visages/barillot>

Ph.: +33/2 99847505 / Fax: +33/2 99847171

Address: IRISA, Campus de Beaulieu, 35042 Rennes Cedex, France

Current Position: Research Director at CNRS since 2001 (1st class since 2010)

PROFESSIONAL PREPARATION

Université de Rennes I

- Ph.D. Thesis, on « Information Processing » entitled « *Computer graphics and 3D reconstruction methods applied to the representation of morphological structures in medicines* », University of Rennes I, 1984.
- "Habilitation à Diriger les Recherches" in Computer Sciences entitled « *Data fusion and 3D imaging in medicines* », University of Rennes I, 1999

BIOGRAPHY

The work of Christian Barillot relate the computer processing of multidimensional images applied to medicine. His interests include the analysis, the integration and the fusion of images, and their application for brain pathologies.

Early in his career, he developed some of the pioneer work in the field of 3D computer graphics applied to medical imaging. Based on this work, he received the French young investigator award in Biomedical Engineering in 1984 by the IEEE French section in Biomedical Engineering. Then, at Mayo Clinic, MN, he developed pioneer work in medical imaging dealing with fast volume rendering on multiple volumes. This work was worldwide distributed through the ANALYZE™ software package, and the major publication has been awarded in 2000 by IEEE Trans. on Medical Imaging (304 cites) as *the most cited paper for the decade with exceptional originality and enduring impact*. Since mid-nineties, his major contributions turned out to address image processing for brain pathologies, especially through i) pioneer work in the field of image registration, incl. as a co-investigator in a NIH review project or as among the first to explore the field of Bayesian framework for non-rigid registration and to introduce robust statistics and hybrid mechanisms in the estimation of deformation fields, ii) pioneer work in comprehensive modelling of brain cortical sulci with high impact in brain image analysis; or iii) in introducing the new concept of NL-MEANS for image denoising in multidimensional medical imaging. Based on this senior record, he was awarded in 2011 as a MICCAI Society Fellow for his significant contribution to neuroimaging and brain image analysis.

Since 2004, he is the scientific leader of the [VisAGeS U746](#) research Unit, and since 2010 he is the director of the [Neurinfo](#) imaging platform. Between 2007 and 2010, he was appointed by [AERES](#) (French National Agency for Scientific Evaluation) as a scientific delegate for the supervision of research units evaluation in the life science domain. Since 2010, he is member of the scientific committee of the [CNRS INS2I institute](#).

SELECTION OF 6 RECENT PUBLICATIONS

- Crimi A, Commowick O, Maarouf A, Ferre JC, Bannier E, Tourbah A, et al. Predictive Value of Imaging Markers at Multiple Sclerosis Disease Onset Based on Gadolinium- and USPIO-Enhanced MRI and Machine Learning. *PLOS-ONE*. 2014 (published online : April 5th, 2014).
- Camille Maumet; Pierre Maurel; Jean-Christophe Ferré; Béatrice Carsin; Christian Barillot; "Patient-specific detection of perfusion abnormalities combining within-subject and between-subject variances in Arterial Spin Labeling" *NeuroImage*, 81, pp. 121-130, 2013.
- C. de Guibert, C. Maumet, P. Jannin, J. C. Ferre, C. Treguier, C. Barillot, E. Le Rumeur, C. Allaire, and A. Biraben, "Abnormal functional lateralization and activity of language brain areas in typical specific language impairment (developmental dysphasia)," *Brain*, vol. 134, pp. 3044-58, 2011.
- D. Garcia-Lorenzo, S. Prima, D. L. Arnold, D. L. Collins, and C. Barillot, "Trimmed-Likelihood Estimation for Focal Lesions and Tissue Segmentation in Multi-Sequence MRI for Multiple Sclerosis," *IEEE Transactions on Medical Imaging*, vol. 30, pp. 1455-67, 2011.
- Giofolo C, Barillot C. Atlas-based segmentation of 3D cerebral structures with competitive level sets and fuzzy control. *Medical Image Analysis*. 2009;13(3):456-70
- Coupé P., Yger P., Prima S., Hellier P., Kervrann C., and Barillot C. (2008). "An Optimized Blockwise Non Local Means Denoising Filter for 3D Magnetic Resonance Images." *IEEE TMI*, 27(4), 425-441.
- [Web list with HAL links \(2013 complete list in pdf\)](#)