

AcouStiC project – Open positions

Model-based Computer Assisted Surgical Planning in Deep Brain Stimulation

The consortium including some major french research labs in the areas of medical image processing, image guided surgery, and surgical simulation, belonging to some of the best french institutes INSERM, INRIA, CNRS, University of Rennes 1, and University of Strasbourg, is opening positions in the context of a newly funded national project ANR in “Model based Computer Assisted Surgical Planning in Deep Brain Stimulation” <http://www.anr-acoustic.org/>.

Context

The main objective of this project is to develop an innovative strategy based on models for helping decision-making process during surgical planning in Deep Brain Stimulation (DBS). Two types of models will be made available to the surgeon: patient specific models and generic models. The project will develop methods for 1) building these models mainly from multimodal medical images and clinical scores, 2) automatically computing and visualizing optimal electrodes trajectories from these models, and 3) estimating and modeling deformations of the anatomy and of the surgical devices. Most of the teams have direct collaborations with neurosurgeons, radiologists, and neurologists from the corresponding University Hospitals.

Positions and locations

Rennes, INRIA / INSERM: *contact Pierre Jannin (Pierre.Jannin@univ-rennes1.fr)*

- 1 software engineer (24 months): Integration of all the developments into a software suite. Strong object-oriented software skills are expected, as well as strong knowledge and experience in high quality software development . Position available in 2013.

- 1 post-doctoral position (18 months): Anatomico- clinical atlas. Segmentation, registration, development of the statistical tools to build the atlas. Applicants should have a PhD and a solid background in image processing, as well as excellent object-oriented programming skills. Experience and publications related to atlases and/or statistical analysis are a plus. Position available in 2011.

Strasbourg, LSIIT (CNRS / University of Strasbourg): *contact Caroline Essert (essert@unistra.fr)*

- 1 PhD student: Planning of curved trajectories for DBS. Study of the constraint solving and multi-objective optimization processes, adapted to curved trajectories in a deformable approach . Applicants should have a university degree (Master/Diploma) with a solid technical and scientific background. Expertise in computer graphics and simulations would be an advantage . Position available in 2011.

Lille/Rennes, INRIA: *contact Maud Marchal (Maud.Marchal@irisa.fr) and Christian Duriez (christian.duriez@inria.fr)*

- 1 PhD student: Deformations of the electrodes and soft tissues. Study of the mechanical model of the electrodes and bio-mechanical model of the brain, and the brain-device interaction. Applicants should have a university degree (Master/Diploma) with a solid technical and scientific background. Expertise in computer graphics and/or mechanical simulations would be an advantage. Position available in 2011.

Paris, CENIR (INSERM, CNRS, UPMC): *contact Eric Bardinnet (eric.bardinnet@upmc.fr)*

- 1 software engineer (6 months): Integration and validation of the registration algorithm using retrospective clinical data, as well as anatomical and electrophysiological data. Strong knowledge and experience in high quality software development are expected. Position available in 2013.

- 1 post-doctoral position (12 months): Non-linear registration dedicated to the deformation of the histological atlas on any given patient's brain . Applicants should have a PhD and a solid background in image processing, as well as strong knowledge and experience in high quality software development . Position available in 2012.

To apply, please send electronically a curriculum vitae, graduation documents, course transcripts, and if available letters of recommendation and representative publications by email to the contact.