



Construction of a multimodality atlas of a reptile brain



Post-doctoral fellowship

A 12-month post-doctoral position is open for the construction of a MRI / PET / histology / blockface atlas of a reptile or rat brain. The position will be held at the CREATIS lab (CNRS UMR 5220, France). Context: The project is a collaboration between the CRNL (Center of Neuroscience of Lyon), INL (Lyon Institute of Nanotechnologies) and CREATIS (Medical Imaging Research Center) that aims at deciphering sleep function and mechanisms with innovative probes, wireless biosensors and imaging technologies.

The position is funded by the Lyon Saint-Etienne Program.

Mission

Images of a reptile brain have been acquired using several medical imaging modalities (MRI T1- and T2-weighted, CT, histology and blockface). The candidate will have to build an atlas of a reptile brain. These will involve the fusion of the different modalities in a common reference. If the fusion of MRI and CT can be performed easily, the blockface/MRI registration is a nonrigid multimodal registration problem. Segmentation of the reptile brain or any brain structure can be a useful preprocessing step.

The candidate will face a similar problematic for the rat brain, but with completely different data (different shape, image contrast, spatial resolution, brain anatomy,...)

The atlas construction procedure will be validated and its use in the context of probe implementation in the animal brain will be made. The atlas will be made available to the scientific community.

High rank journal publications (Neuroimage,...) are expected.

Candidate profile

- PhD in medical image processing or neuroscience/bioengineering with good background in image registration.
- Good knowledge of general image processing method (segmentation, denoising, ...)
- Strong Knowledge of medical imaging toolkit such as (FSL, Elastix, ...) or library (ITK,...)
- Fluency with at least one programming language among: matlab, bash, C++
- Fluent in English

Place, duration and remuneration

- 12 months contract, starting from January or February 2014.
- net salary: 2000 Euros per month
- Locations : Campus de la Doua, Villeurbanne, France

Application and contacts

Motivation letter, CV, list of publications, letters of recommendation and references should be send to:

- michael.sdika@creatis.insa-lyon.fr
- olivier.beuf@creatis.insa-lyon.fr