The Paris Brain Institute hires

**A master student (M2) in software development of analysis pipelines for neuroimaging data from brain-computer interfaces**

*Position to be filled as soon as possible*

**6 month**

*Paris 13ème*

The Paris Brain Institute is a private foundation recognized as a public utility, dedicated to fundamental and clinical research on the nervous system. On a single site, 600 researchers, engineers and doctors cover all neurological disciplines, with the aim of accelerating discoveries about how the brain works, and the development of treatments for diseases such as Alzheimer’s, Parkinson’s, multiple sclerosis, epilepsy, depression, paraplegia, tetraplegia, etc. Inaugurated in September 2010, the Institute is experiencing significant growth in its activity, which requires the support of a strengthened legal department.

**INTERNSHIP DESCRIPTION**

**MAIN TASKS**

An M2 trainee position in software development applied to EEG (electroencephalography) data processing is available in the NERV laboratory ([https://team.inria.fr/nerv/](https://team.inria.fr/nerv/)) at the Paris Brain Institute.

At the project’s starting point are experiments using brain-computer interfaces (BCI) by subjects who, by modulating their brain activity, control an external device. During recording sessions, brain data are acquired by EEG ([https://sites.google.com/site/devicofallanifabrizio](https://sites.google.com/site/devicofallanifabrizio)), then analyzed offline to train machine-learning algorithms, with the aim of optimizing the BCI’s on-line performance.

The internship is part of a research project aimed at improving the translation of brain signals into commands. Offline data analysis for training machine-learning algorithms is carried out using Python software developed by the team (HappyFeat). This software uses OpenViBE, another software package developed by INRIA, enabling the use of BCI systems via drivers, data management and processing software bricks and visualization modules. Another BCI software offering similar functionalities is Timeflux.

After familiarization with the algorithms used and the OpenViBE and Timeflux software, the candidate will set up EEG data processing pipelines in Timeflux, developing missing algorithmic bricks if necessary. Secondly, they will adapt the team’s software to integrate the use of Timeflux as a processing engine. Finally, they will validate the developed processing chain in an experimental setting.

The trainee will also be asked to help make the GUI of the team’s software evolve, and to take part in a continuous integration approach by setting up automated tests.

Good experience in software development is essential for this internship. Proficiency in Python and configuration management with Git will be required. Knowledge of signal processing and physiological signals would be a plus.

**HIRING CONDITIONS**

- Internship available as soon as possible;
- 6 months internship;
- Net salary of approx. 600€/month
PROFILE

M2 or 3rd year engineering student;

SKILLS

• Proficiency in software development (Python, C/C++ is a plus)
• Experience in signal processing
• Experience of versioning tools and workflows (git/github)
• Proficiency in written and spoken English

SOCIAL SKILLS

• Ability to work independently.
• Interest in the world of research
• Team spirit

To apply, please prepare your cover letter and CV (in a single PDF file).

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