

Neuroimaging Data Scientist

Multimodal neuroimaging study of cerebellar anomalies in Parkinson's disease

The project SENCE (*Movement disorders in Parkinson's disease: The role of somatosensory deficits and cerebellar anomalies*) is funded by the French National Research Agency (ANR) and conducted in collaboration with the University of Oxford (*Medical Research Council -MRC*). It investigates the anatomical anomalies and abnormal metabolism of the cerebellum resulting from basal ganglia deregulation in Parkinson's Disease (PD), which may contribute substantially to motor deficits. To this aim, we collect in PD patients (and healthy controls) an original multimodal neuroimaging dataset, comprising anatomical, diffusion-weighted (DWI), and resting state fMRI (rs-fMRI), as well as FDG-PET images, complemented by behavioural and electrophysiological recordings (EEG/intracranial LFP) collected in the same participants during motor tasks performed ON/OFF dopaminergic medication and/or ON/OFF deep brain stimulation (using open- or closed-loop adaptive stimulation protocols).

Missions. The data scientist will be responsible to set-up processing pipelines dedicated to analyzing the different neuroimaging scan types (MRI and PET), both at the full-brain level and with a particular focus on the characterization of the anatomy, connectivity and metabolism of the cerebellum. These neuroimaging results will also be combined with behavioural and electrophysiological data which will be analysed by other members of the project team. Furthermore, the data scientist will organize the raw and processed data in a standardized fashion to make it accessible to all the consortium and to the scientific community at large. These missions fall into our commitment to reproducible science through open code and data.

Profile. This position is for a candidate who is comfortable (or proficient) with **computer programming (python** will be our language of choice; matlab will also be used) and has good knowledge and/or experience in **signal and image processing**. It can be of interest to different types of profiles. You are a young graduate (BSc or MSc) either in data science, in electrical engineering or in neuroscience and you want to be at the heart of an innovative medical imaging project, with the possibility to continue as a PhD student. Or you already have a PhD in a relevant field and you want to take this opportunity to fulfill the aforementioned missions while getting further involved in the research aspects of the project, which should offer excellent opportunities for publications in neuroscience or methodological journals.

Working environment. The *Institut de Neurosciences de la Timone* (INT) is one of the top French neuroscience research institutes with 150 staff members gathered in 10 inter-disciplinary teams examining different aspects of the cerebral organization. It is located on the medical campus of Aix-Marseille University. The successful candidate will join the SENCE project's team within INT and will interact with cognitive neuroscientists, theoretical neuroscientists as well as specialists in neuroimaging data acquisition and processing. Marseille, the second largest city in France, is a vibrant inter-cultural hub located on the Mediterranean shore, and only 2h away from the Alps mountains.

The position is initially open for one year, with a possible renewal for two more years. Starting date can be as early as December 2019 and can be postponed until the position is fulfilled. If you are interested, please send your resume and cover letter to:

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