

POSTDOC POSITION in Marseille, France, in EEG-fMRI recordings, EEG signal processing, fMRI analysis.

Project funded by Agence Nationale de la Recherche

Topic. Measurement of functional connectivity in simultaneous EEG-fMRI recordings

Context. There is a growing interest in non-invasive measurements of functional connectivity in the human brain, based on functional magnetic resonance imaging (fMRI) or high-resolution EEG. Still, there is no consensus on the best methodology to use, and on the concordance or discrepancy between modalities. Also, these measures have been performed on separate recordings, even though it is now possible to perform simultaneous EEG-fMRI recordings. The simultaneous recordings have the great advantage to permit to compare the modalities in the exact same brain state, in particular in terms of habituation, learning and vigilance. Moreover, the simultaneous EEG recordings permit (i) to track fluctuations in brain response or state, and (ii) obtain a marker of spontaneous activity such as alpha waves or epileptic discharges, which brings additional information for the fMRI analysis.

We propose a postdoc position for 18 months to use simultaneous recordings in epileptic patients for computing connectivity both in EEG and fMRI (3T Verio Siemens scanner devoted to research), in a face recognition paradigm, with emphasis on the ventral stream connectivity. We will use intracerebral EEG recordings in epileptic patients in order to validate the non-invasive results and to better understand the links between electrophysiology and fMRI signals.

Salary : 1800 Euros net per month for 18 months.

Skills. EEG-fMRI recordings, EEG signal processing, fMRI analysis

Participants and contacts

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