

Neuroscience/Imaging PhD Position

in the frame of the Werner Reichardt Centre for Integrative Neuroscience, Tübingen (Germany) we offer a PhD position

TITLE: Evaluating voxel-based functional connectivity measures in epilepsy

AIM

The current project is focused on the development of a graph-theory, voxel-based functional MRI connectivity approach to analyze epileptic brains in humans. MR imaging is of pivotal importance for the pre-surgical evaluation of patients with focal epilepsy and can be used to understand the architecture of an epileptic network in the whole brain. However, standard structural methods are unrevealing in a significant proportion of patients (up to 50%). Novel, functional methods are needed to better analyze the spatial distribution and the temporal dynamics of the epileptogenic network. It is the aim of this project to develop and apply very rapid (below 0.5 seconds TR) EPI acquisition in combination with a voxel-based functional connectivity mapping. We will assess the influence of spontaneous “interictal” epileptic activity as measured by parallel recorded (high-density) scalp EEG.

SETTING

The successful candidate will work jointly in the Department of Neurology and Epileptology (head Prof. Lerche) and the Department of Biomedical Magnetic Resonance (head Prof. Scheffler). The work will be supervised by Dr. Focke (research group leader,

gefördert durch die

Gemeinnützige

Hertie-Stiftung 

Imaging in Epilepsy, Department of Epileptology) and PD Dr. Ethofer (deputy head of Department of Biomedical Magnetic Resonance). The applicant will have access to a unique setting including high-density MR-compatible 256-channel EEG, 3T- and 9.4T-MRI scanners. The medical university runs a comprehensive epilepsy surgery program including invasive EEG recordings.

SKILLS

The applicant will learn and develop state-of-the-art functional connectivity analysis in healthy subjects and epilepsy patients and can also learn (high-density) EEG.

REQUIREMENTS

Applicants should have a university degree preferably in (MR-) physics or mathematics. A degree in biology or medicine is also possible if the other requirements are met. Programming skills (Matlab) are required; the candidate should have previous knowledge about MR-imaging and/or EEG. Epilepsy experience is beneficial but can also be provided locally. Likewise previous experiences in graph-theory analysis are a plus.

FORMALIA

The duration of the position is initially for 2 years. An extension is possible. The planned start date of the position is April 1, 2013. Earlier start dates are negotiable. The position is funded by the Werner Reichardt Centre for Integrative Neuroscience (CIN), which is an interdisciplinary institution at the Eberhard-Karls University Tübingen, funded by the German Excellence Initiative program. The CIN strives to advance our understanding of the mind/brain by studying how the brain generates and sustains mental functions and how brain diseases impair these functions. The PhD thesis will be embedded into the Graduate School of Neural & Behavioural Sciences, Tübingen.

PAYMENT

1,365€ per month (tax free fellowship/stipend)

APPLICATION

Applicants should submit curriculum vitae, a one page statement summarizing their previous experience and indicating how they envisage their contribution to the project and two reference letters. Candidates should request their referees to email Dr. Focke directly with their reference letters by the deadline. All documents should be submitted electronically (pdf) to Dr. Focke (niels.focke@uni-tuebingen.de). Shortlisted candidates will be invited for interviews (in personam or via Skype).

APPLICATION DEADLINE: February 15th, 2013