

We are looking for a highly motivated student (f/m) for a

## Doctoral degree in Clinical Neurosciences

### Degree

Our students generally obtain their doctoral degrees from the Faculty of Medicine at the University of Marburg. The awarded degree is Dr. rer. nat. (i.e. Doctorate in Natural Sciences), the German equivalent of a PhD.

### When?

The project will start **01.April 2019** and is estimated to be completed within three years.

### Where?

This project will be conducted in the **Clinical Systems Neuroscience Lab** in the **Department of Neurology** of the **University Hospital Marburg, Germany**. We work closely with the **Department of Neurosurgery**. The hospital is affiliated with the **Philipps University of Marburg**, one of the oldest universities in Europe and home to one of Germany's most traditional medical faculties. Alumni range from the Brothers Grimm to Nobel Laureates Emil von Behring, Otto Loewi and Jules Hoffmann.

### The project

The aim of the PhD project will be to predict and optimize the clinical outcome of **Deep Brain Stimulation for Parkinson's disease** based on preoperatively and intraoperatively acquired multimodal data using machine learning.

### The team

The **Clinical Systems Neuroscience Lab** is a multidisciplinary lab composed of neurologists, neuroscientists, psychologists, biologists and medical technicians. We use innovative analytic techniques to advance the understanding of physiological and pathological **neural oscillations** and develop **new treatment options for neurological disorders**.

To this end, we employ **high-resolution scalp electroencephalography (EEG)** and direct recordings from the human brain (**intracranial EEG**). Intracranially, we record **local field potentials**, as well as **single unit activity** from several brain regions, such as the thalamus, hippocampus, prefrontal cortex and basal ganglia. We are particularly interested in the frequency-specific effects of **deep brain stimulation** on the neural signature of motor and cognitive brain functions. For further details, visit our website: [www.systemsneuroscience.de](http://www.systemsneuroscience.de).

## **We offer...**

- An innovative and highly relevant research topic
- Cutting edge infrastructure and technology
- The possibility to learn innovative analysis techniques of neurophysiological data
- A young, interdisciplinary and international team
- The possibility to work with patients and apply your research clinically

## **We are looking for...**

We are looking for a highly motivated, reliable student with experience in research, who is able to critically appraise information and work independently. The applicant should have a **background in neuroscience, biology, mathematics, physics** or related fields (**MSc or equivalent degree**). Programming skills and/or experience with machine learning are advantageous, but not a prerequisite for an application. The applicant should have an affinity for mathematics and the motivation to employ and advance new complex computational methods. We are looking for a team player, who is interested in working with neurological patients as part of their research project. As the project requires communication with patients, a certain level of proficiency in German is required.

## **Funding**

Funding is available for **three years** and can be extended, if necessary.

## **Application**

Applications should include a letter of motivation, your curriculum vitae including your research experience and list of publications. Please also provide two letters of recommendation of previous employers or principle investigators of previous labs.

We look forward to receiving your application by February 24<sup>nd</sup> 2019. Please send all documents as pdf to the junior principal investigator Carina Oehr:

*Carina Oehr*  
*University Hospital Gießen & Marburg*  
*Department of Neurology*  
*Baldingerstraße*  
*35043 Marburg, Germany*  
*E-Mail: carina.oehr@staff.uni-marburg.de*