ERA-NET NEURON

Promoting the development of a European strategy for research in the area of **disease-related neurosciences**

Supported by the European Commission

"I-See" - EU-funded PhD position
Combining theory and neurophysiology for developing intracortical visual prostheses

The Optical Imaging Group at Ruhr-University Bochum (https://jancke-lab.de) is seeking a candidate for a PhD position of our newly funded EU project, in the framework of ERA-Net Neuron.
Our multidisciplinary project brings together scientists from different fields and complementary experimental and theoretical know-how.
The project part of the PhD position comprises electrical stimulation in the mouse brain combined with cutting-edge (optogenetic) voltage-sensitive dye imaging techniques (Knöpfel Lab, Imperial College London). The aim of our international consortium (Switzerland, Canada, UK, and Germany) is to improve the ability of cortical prostheses to 'mimic' the language of the brain and increase the safety and longevity of visual prosthetic devices.

For blind patients who cannot profit from a retinal implant, intracortical visual prostheses offer great promise. However, at the time, intracortical prostheses have had limited success, mainly because they require strong stimulation currents, which generate non-specific percepts, and which may also bear the risk of tissue damage. We address these limitations by targeting complex response properties of neural populations in areas beyond primary visual cortex to generate more specific percepts and link electrical stimulation patterns in a closed-loop setup. Generally, our approaches shall provide further insight into brain dynamics, while exploring options for its external stimulation and the potential of interfaces to target perceptual content.

Required is an excellent university degree in Biology, Medicine, Physics, or a related discipline. Successful candidates should have a strong background in neuroscience, expertise in electrophysiology, and good programming skills (Matlab/Phyton) applicable to complex data recordings, analysis, and mathematical concepts. The willingness to work within integrative frameworks is highly desirable. Good communication skills, creative and independent thinking, and fluent English are mandatory. The candidate may participate in the PhD program of the International Graduate School of Neuroscience (IGSN).

The Ruhr University Bochum is home to a vibrant research community in neuroscience with many laboratories focusing on all aspects of neuroscience research. We particularly seek to promote the careers of women and we are therefore encouraging applications from female candidates. Applications from suitable candidates with severe disabilities are also most welcome.

The position is, according to the project duration, initially limited to 3 years. Salary is according to German/NRW TV-L E13/65%.

In case you are interested, we kindly ask you to send a detailed motivation letter, CV, transcripts and contact details of two referees, who are willing to provide a reference letter, all in a single PDF file.

RUHR UNIVERSITÄT BOCHUM RUB

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