



PhD-Position

“Theory of Interaction between Brain Networks”

Computational Neuroscience lab – Prof. Dr. Stefan Rotter

Little is known about how different functional modules (layers, areas, nuclei) of the mammalian brain dynamically interact with each other. As each module is typically a network in its own respect, there are many possibilities how two such networks are wired together. For example, it is important to specify which types of neurons are targeted, and in which layer the targets are localized. It also matters what are the properties of the signals to be transmitted from one network to the other, and whether source and target networks are actually part of a larger recurrent circuit. The immediate goal of this project is a systematic analysis of how networks in the brain dynamically interact, using large-scale numerical simulations in combination with mathematical network theory. A long-term goal of the lab is to improve our understanding of the principles of brain function, but also of brain dysfunction, on the level of neurons and networks.

We invite applications to join the lab for a 3-4 year PhD project in neurophysiology within the PhD program “BrainDisC” at the Bernstein Center Freiburg. The project is financed by a fellowship of the DAAD that can only be awarded to non-German applicants that have not been staying in Germany for more than 15 months at the time of their application.

The successful applicant has prior training in computational neuroscience, physics, mathematics, or engineering, excellent command of English language, knowledge of a programming language like Python, high motivation for independent work in neuroscience, and willingness to integrate in and contribute to an international research team.

The Bernstein Center Freiburg concentrates research in Computational Neuroscience and Neurotechnology at the University of Freiburg, Germany. The projects are highly interdisciplinary and span across mathematical-theoretical approaches on the function and dynamics of neuronal networks, neuroanatomy, experimentally driven neurophysiology and the development of technologies for medical application.

Further details on:

www.bcf.uni-freiburg.de/jobs

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