JÜLICH
Forschungszentrum

Shaping change: this is what drives us at Forschungszentrum Jülich. As a member of the Helmholtz Association with some 7,600 employees, we conduct interdisciplinary research into a digitalized society, a climate-friendly energy system, and a sustainable economy. We focus on the natural, life, and engineering sciences in the fields of information, energy, and bioeconomy. We combine this with expertise in high-performance computing and artificial intelligence using unique scientific infrastructures.

The position is offered in the team of Dr. Johanna Senk at the Institute for Advanced Simulation - Computational and Systems Neuroscience IAS-6, https://go.fzj.de/future-simulation-architectures in the context of the Collaborative Research Centre (Sonderforschungsbereich) 1286 https://www.sfb1286.de and in close collaboration with Universitätsmedizin Göttingen, Germany, and the University of Sussex, UK. There is also an opportunity for a research stay at the University of Sussex.

We are looking for someone to join our team as soon as possible in a

PhD Position - Multi-Scale Data-Driven Model of Synaptic Function and Resilience

Your Job:
Healthy brain function relies on dynamic changes at the synapse. The relevant synaptic turnover and plasticity processes span spatial scales from the molecular up to the network level, and temporal scales from seconds to hours and beyond.

The aim of this PhD project is to build a multi-scale model linking molecular renewal to functional properties of synapses to study the relationship between synaptic resilience and the reliability of synaptic responses. The work primarily involves mathematical modeling and numerical simulation, but also the analysis of experimental datasets for model validation.

Your Profile:
- A Masters degree with a strong academic background in physics, mathematics, computer science, computational neuroscience, or a related field
- Excellent quantitative and analytical skills
- Proficiency in at least one programming language (Python, C++, …)
- Keen interest in neuroscience is essential

The job will be advertised until the position has been successfully filled. You should therefore submit your application as soon as possible. We look forward to receiving your application via our **Online-Recruitment-System!**

Questions about the vacancy?
Get in touch with us by using **our contact form.**
Please note that for technical reasons we cannot accept applications via email.
www.fz-juelich.de

- Experience with modelling, analysis of complex dynamical systems, simulation, analysis of large-scale datasets with machine learning methods, and software development are beneficial
- Good organisational skills and ability to work systematically, independently and collaboratively
- Effective communication skills and an interest in contributing to a highly international and interdisciplinary team
- Working proficiency in English for daily communication and professional contexts (TOEFL or equivalent or exemption required)
- Knowledge of German is beneficial

Our Offer:
We work on the very latest issues that impact our society and are offering you the chance to actively help in shaping the change! We support you in your work with:

- ENVIRONMENT: World class science environment at the interface between neuroscience and digital technologies, enabling scientific progress on the most complex known systems
- TEAM & INFRASTRUCTURE: a highly motivated group as well as an outstanding scientific and technical infrastructure
- SUPERVISION & SUPPORT: We will accompany your doctoral studies with continuous, expert guidance from your academic supervisor
- OPPORTUNITY: for a research stay in the United Kingdom
- NETWORKING & EXCHANGE: You will participate in (international) conferences and project meetings and actively build your scientific network
- VACATION: You will receive 30 days of vacation
- CAMPUS EXPERIENCE: Our research campus in the countryside creates ideal conditions for collegial exchange and sporting activities right on site. Our cafeteria offers a wide range of options - you can enjoy a relaxing lunch break with a lake view
- KNOWLEDGE & DEVELOPMENT: Your professional development is important to us – we support you specifically and individually e.g., through training and networking opportunities specifically for doctoral candidates (JuDocS): https://go.fzj.de/JuDocs
- SUPPORT FOR INTERNATIONAL EMPLOYEES: Our International Advisory Service makes it easier for international employees to get started
- FIXED-TERM: The position is limited to 3 years
- FAIR REMUNERATION: Depending on your qualifications and assigned responsibilities, you will be classified according to pay group 13 (65%) of the TVöD-Bund. Additionally, you will receive a special payment (“Christmas bonus”) amounting to 60% of one month’s salary. All information about the TVöD-Bund collective agreement can be found on the BMI website (pay scale table on page 69 and following of the PDF download): https://go.fzj.de/bmi.tvoed

In addition to exciting tasks and a collegial working environment, we offer you much more: https://go.fzj.de/benefits

We welcome applications from people with diverse backgrounds, e.g. in terms of age, gender, disability, sexual orientation / identity, and social, ethnic and religious origin. A diverse and inclusive working environment with equal opportunities in which everyone can realize their potential is important to us.

The following links provide further information on diversity and equal opportunities: https://go.fzj.de/equality and and on the targeted promotion of women:

https://go.fzj.de/womens-job-journey