

Doctoral Researcher

Computational Modeling for Personalized Neuromodulation Therapies

Full time research position starting as soon as possible, remuneration according to TV-L E13 Bavaria regulations.

Qualifications

- Master's Degree in Physics, Mathematics, Electrical Engineering, Biomedical Engineering or related
- Experience in one or more: Mathematical Modeling for Physics and/or Engineering, Computational Neuroscience, 3D CAD, Image-Based Reconstruction, Machine Learning
- Proficiency in Python, Matlab, C++
- Good written and verbal skills in English

Project Description

Neuromodulation technologies have made dramatic advances in the last few decades, relieving a plethora disorders. However, the definition of clinically meaningful neurostimulation strategies is challenging due to the growing number of clinical applications, the increasing complexity of the corresponding technologies and vast inter-subject variability of physiological parameters in humans. Digital twins are natural candidates to optimize and personalize neurotechnologies for clinical use. In this project the successful candidate is asked to develop a framework for the rapid elaboration of personalizable computational models of the nervous system. The successful student will be asked to develop and integrate image-based reconstruction technologies to automatically generate digital twins of individual subjects. The successful student will consolidate mathematical models of neural substrates and multi-physics modeling into this framework to test, enhance and personalize the efficacy of existing neuromodulation technologies and explore novel applications.

The Chair of Digital Health

The Chair of Digital Health offers an open-minded, international working environment with an inspiring bandwidth of research projects, spanning topics in advanced data science, 3D computer modelling, biomedical signal processing, and embedded systems engineering. The chair offers collaborative projects with various medical institutes in Erlangen, Germany, and worldwide. The chair collaborates with various leading industrial/business partners too and specifically supports spin-offs. Students with various educational backgrounds consider the chair for internships and theses projects, including but not limited to computer science, medical engineering, electrical engineering, mechanical engineering, and medicine. The chair offers state-of-the-art laboratory facilities and staff supporting validation studies, including electronics development, additive manufacturing, and photometric systems. Moreover, the chair operates a dedicated computing cluster infrastructure for simulations and testing of methods and algorithms. More information on the Chair of Digital Health can be found online: [Chair of Digital Health](#).

The University

Founded in 1743, FAU has a rich history. It is a strong research university with an international perspective and one of the largest universities in Germany, with 39.868 students, 263 degree programmes, 4,000 academic staff (including over 576 professors), 177,6 million euros (2016) third-party funding, and 500 partnerships with universities all over the world. Teaching at the University is closely linked to research and focuses on training students in both theory and practice to enable them to think critically and work independently. The research strikes the perfect balance between a theoretical approach and practical application. FAU's outstanding research and teaching is reflected in top positions in both national and international rankings. More information on FAU can be found online: [FAU](#).

Application

FAU is a member of the Best Practice Club 'Family and University' and promotes equal opportunities. Female candidates are specifically encouraged to apply. The position is open to start immediately or at a negotiated date.

Please send your application including cover letter with interests and background (max. 1 page), plus full CV and transcripts, as one PDF document via e-mail (see contact information below) to Dr. Andreas Rowald, Chair of Digital Health, FAU Erlangen-Nürnberg, Henkestrasse 91, 91052 Erlangen.

Please note that the candidate evaluation involves one or more scientific-technical presentations and interview appointments to be held via teleconferencing. Applications sent via e-mail will be confirmed within a week. Furthermore, please note that applications not complying with the above requirements may neither be confirmed nor considered.

Contact

If you have questions regarding this position offer, please contact Dr. Andreas Rowald.



Dr. Andreas Rowald
Research Group Leader
Chair of Digital Health

☎ +49 1590/6120662

✉ andreas.rowald@fau.de