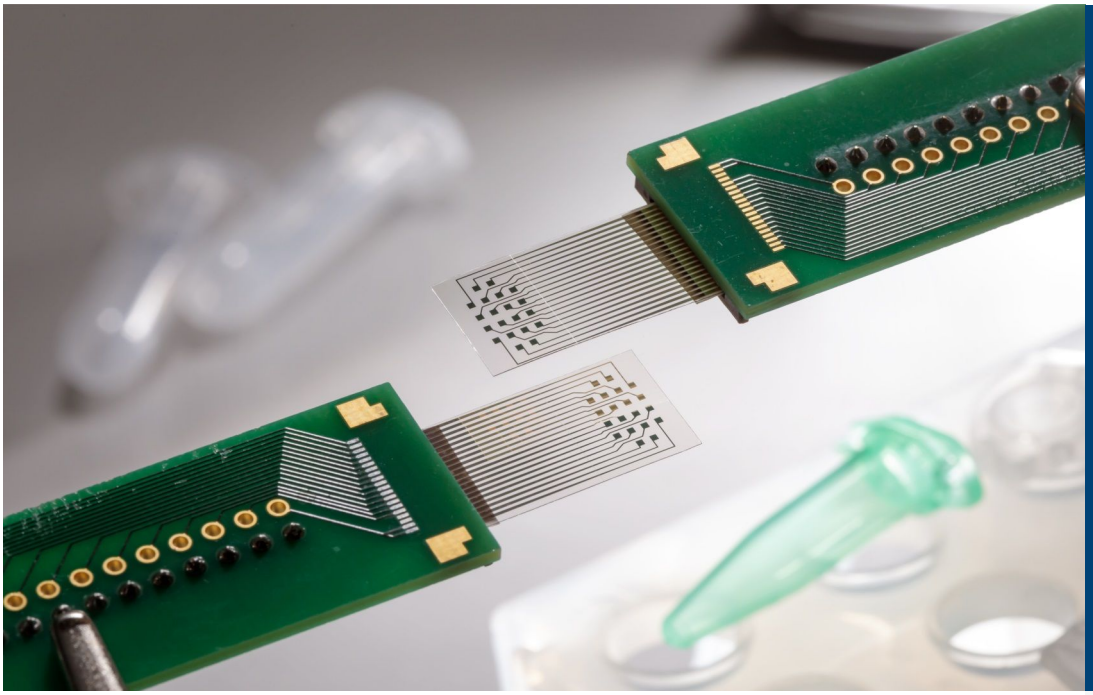
JÜLICH
Forschungszentrum



Conducting research for a changing society: This is what drives us at Forschungszentrum Jülich. As a member of the Helmholtz Association, we aim to tackle the grand societal challenges of our time and conduct research into the possibilities of a digitized society, a climate-friendly energy system, and a resource-efficient economy. Work together with around 7,500 employees in one of Europe's biggest research centres and help us to shape change!

At the Institute of Biological Information Processing, Bioelectronics (IBI-3) at the Forschungszentrum Jülich, physicists, chemists, biologists, material scientists, and engineers perform joint research on the scientific principles of the functional link between biological matter and electronic components. This collaboration has led to the development of platforms for microfluidics, micro-and nano-patterning, electronic biosensors, neural implants, and neuromorphic plarforms. These technologies are developed not only to understand biological processes but to pave their way in neurotechnology and neuroscience.

We are looking to recruit a

Master Thesis: Development of a Testing Platform for Long-Term Stability of Invasive Brain-Computer Interfaces

Your Job:
Neural interfaces are electronic devices designed to interact with the nervous system, capturing and controlling neural activity to map neural networks, understanding the mechanisms behind neurodegenerative diseases, and restoring sensorimotor functions. Many of these applications require long-term investigation, making the evaluation of the long-term stability of neural implants crucial. Consequently, a testing platform that mimics physiological conditions for accelerated aging tests is essential.
This project involves assessing our current testing platform and identifying its limitations. Additional factors such as oxidative stress within biological tissues, micromotion caused by heartbeat or breathing, and functional load due to repetitive electrical stimulation must be considered. Based on these considerations, solutions will be developed and implemented to create an advanced testing platform for the comprehensive evaluation of the long-term stability of invasive brain-computer interfaces.

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

Your task will include:

- Analyzing limitations of the current set-up
- Developing solutions to incorporate different loads
- Building a new testing set-up
- Test set-up by performing an accelerated aging test on different neural implants

Your Profile:

- Bachelor's degree (or equivalent) in physics, biomedical, electrical or mechanical engineering, material sciences or related field
- Ability to communicate with scientists and technicians from various disciplines
- Well-structured and systematic research approach
- Independent and analytical working style
- Passion for science
- Interest in the field of Neurotechnology
- Advantageous, yet not mandatory, is knowledge in mechanical Biophysics and Electrochemistry

Please feel free to apply for the position even if you do not have all the required skills and knowledge. We may be able to teach you missing skills during your induction.

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 offer ideal conditions for you to complete your master's degree:

- A pleasant working environment within a highly motivated and competent working group as well as an international and interdisciplinary team at one of the most prestigious research facilities in Europe
- You will be supported by outstanding scientific and technical infrastructure as well as closely scientific mentoring
- Flexible working hours as well as a reasonable remuneration
- Ideal conditions for gaining practical experience alongside your studies
- Excellent technical equipment and the newest technology
- The chance to independently prepare and work on your tasks

Further information on the project is available at:
https://www.fz-juelich.de/ibi/ibi-3/EN/Research/Neuroelectronics/ImplantableElectronics/_node.html

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.