



Call for PhD students & Postdoc researchers

Our research group at the **University Hospital Tübingen** unites neuroscientists, engineers, computer scientists and physicians following a common goal: To improve the lives of patients with neurological disorders using state-dependent and adaptive stimulation of the nervous system. To achieve this goal, we combine online-analysis of electrophysiology (e.g. EEG, LFP) with non-invasive (tCS, tMS, NMES) or invasive (DBS) stimulation.

We are a translational group. That means, we work closely together with biomedical companies to gain access to new tools, combine basic studies on healthy subjects with clinical studies on patient populations, and apply the knowledge gained from these studies to develop and refine these new tools.

Representative work from the last months

- Naros et al. *Mov Disord*. 2018. doi: 10.1002/mds.27221.
- Khademi et al. *Cereb Cortex*. 2018. doi: 10.1093/cercor/bhy016.
- Kraus et al. *J Neurosci*. 2018. doi: 10.1523/JNEUROSCI.2893-17.2017.
- Guggenberger et al. *Brain Stimul* 2018. doi: 10.1016/j.brs.2018.08.012.

Current projects

We apply intelligent therapeutic systems in different research fields:

- State-dependent neuromodulation for the restoration of motor function (see e.g. Khademi et al., *Cereb Cortex* 2018)
- Adaptive brain-robot interfaces for neurorehabilitation (see e.g. Kraus et al., *J Neurosci* 2018)
- Directional deep brain stimulation for targeted network modulation in Parkinson's disease (see e.g. Naros et al., *Mov Disord* 2018)
- Non-invasive electrical stimulation for restoration of poststroke brain perfusion (see e.g. Yadollahikhaleset al., *Clin Appl Thromb Hemost*. 2016)
- Auricular vagus nerve stimulation for the modulation of the autonomic nervous system (see e.g. Garcia et al., *Pain* 2017)
- State-dependent neuromodulation for the treatment of chronic pain (see e.g. Solcà et al., *Neurology* 2018)
- Modulating brain oscillations during sleep for ADHD treatment (see e.g. Prehn-Kristensen et al. *Brain Stim* 2014)



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What you can expect

- **Make a difference in the treatment of neurological disorders:** Design and evaluate novel brain stimulation paradigms. Investigate the effects of these paradigms using electrophysiological data. Expand the understanding of the human brain.
- **Acquire and analyze human data:** Opportunity to work with in vivo data. Examine electrophysiological signals from patients and healthy controls. We support your work with a broad range of pre-build analysis tools and assist you in designing your own approaches.
- **Take responsibility:** Access to state-of-the-art technologies to generate reliable results.
- **Join a team that is united by a vision:** To enhance the understanding of the human brain in order to invent and implement more effective therapies.

Qualifications

- A team-player who creates bridges between their own expertise and the perspectives of other team members.
- A solid understanding of statistical data analysis, digital signal processing and/or programming principles.
- Programming skills in Python or MATLAB and/or experience in applying statistical tools, e.g. machine learning for data analysis.
- Experience with relevant techniques, i.e. tDCS, TMS, NMES, M/EEG, and/or EMG.
- Master's degree/ PhD degree in the field of neuroscience, cognitive science, biology, computer science, engineering, data science or related fields.

Funding

We offer remuneration in accordance with TV-L (collective wage agreement for the Public Service of the German Federal States) in addition to all the customary benefits granted to employees working in public services. Severely handicapped persons with equal qualifications are given preferential consideration. The University of Tübingen is eager to increase its quota of female scientific staff, and therefore emphatically requests women to apply for this position. The Administration of the University Hospital is responsible for all employment matters. Personnel appointments will be made pursuant to the fundamental stipulations of the legal statutes for universities in Germany. Interview expenses are not covered.

Application

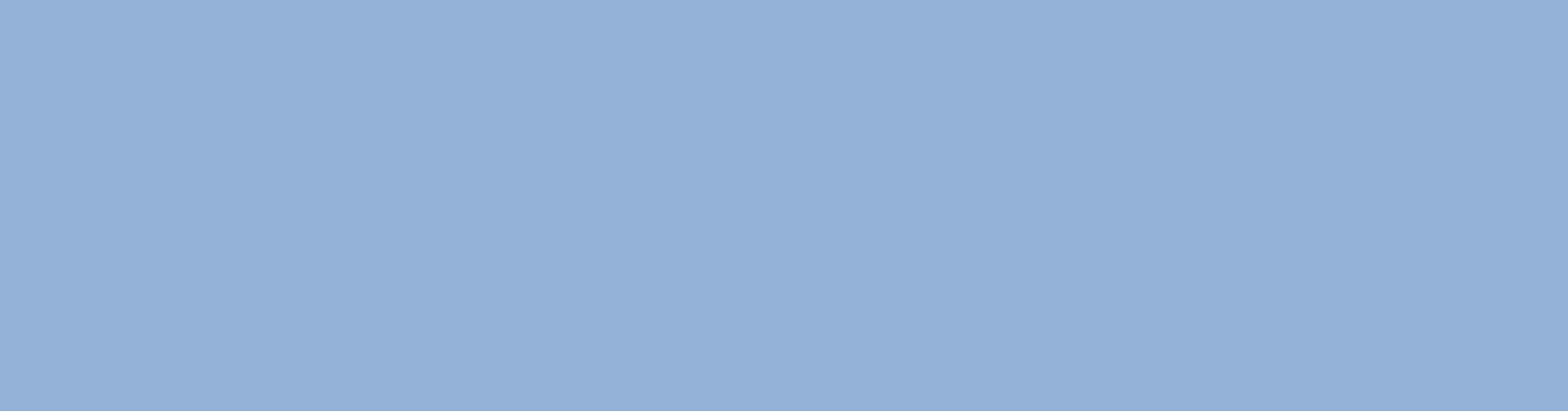
Please include within one pdf-file or separate pdf-files:

- **Cover letter** outlining (i) how you meet the requirements for the position, (ii) which of the available projects (listed above) you would like to be involved in, (iii) relevant details of your past research projects, and (iv) an explanation of how your previous experience lends itself to your desired prospective project. (~750 words)
- **Curriculum vitae** (including publication record: research manuscripts, journal papers, conference contributions, etc.)
- **Names and email addresses of three professional references** (e.g. current or previous research advisors)
- **Transcript of Records**
- **TOEFL scores** or other evidence of English and/or German proficiency
- **GRE scores** (optional)

Please send your significant application electronically (PDF-files only) to:

VWKopf_Sekr@med.uni-tuebingen.de

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Tübingen is a scenic medieval university town, located in one of Germany's most beautiful landscapes and one of Europe's most economically successful areas. Stuttgart airport is one hour away by bus, Frankfurt airport can be reached in two hours by train.

Both the University of Tübingen and the University Hospital are regularly ranked among the best institutions in Germany. The Tübingen NeuroCampus is home to gifted students and experienced scientists from all over the world and provides access to excellent infrastructure, including regular series of tutorials, lectures, journal clubs and invited talks by international guests.

The local Max Planck Institutes for Biological Cybernetics and for Intelligent Systems are world-class centers for foundational research in neuroscience, machine learning, and robotics, as part of the Cyber Valley Initiative that brings new research groups, professorships, and industry partners to Tübingen and Stuttgart.



University of Tübingen INNOVATIVE. INTERDISCIPLINARY. INTERNATIONAL. SINCE 1477. The University reinforces its basic research with outstanding performance in core areas. Selected as one of Germany's Excellence Universities, its policy of targeted funding covers collaborative research centers, research groups, research training groups and outstanding individual research, as well as partnerships with business and industry. PhD networks help to integrate young researchers into structured doctoral studies while promoting interdisciplinary research projects. Innovative programs together with other Universities and government-funded research institutions include Medical Technologies, Behavioral and Neuroscience, Neural Information Processing, Machine Learning and Robotics. The University also provides help for young researchers whose work has potentially commercial applications. Notable alumni, amongst many others, include:

- Alois Alzheimer (gave the first public description of the dementia which bears his name)
- Johannes Friedrich Miescher (discovered nucleic acid - the stuff of DNA - in Tübingen)
- Johannes Kepler (his three laws described the orbit of planets around the sun)
- Georg Wilhelm Friedrich Hegel (described as philosopher "The Phenomenology of Spirit")
- Wilhelm Schickard (constructed the first mechanical computer)



University Hospital Tübingen The University Hospital Tübingen which was founded in 1805 adds to the effective combination of medical treatment of the highest standard, excellent research and teaching.

The Hospital is a reliable partner in four of the six German centres for medical research, initiated by the Federal Government. It offers the very best in health-care and enjoys an excellent reputation that extends well beyond the regional borders. Each year, around 74,000 inpatients and 367,000 outpatients are treated in one of the 17 clinics, with 40 departments, and 15 multidisciplinary centers. The Medical Faculty, close partner of the UKT providing excellent teaching and research, is one of the four founding faculties of the University of Tübingen from 1477 with ~1700 researcher, ~980 labs and ~2200 publications each year.