

## Postdoc (Biomedical Engineering – Neural Interfaces)

### Description

The Munich School of Robotics and Machine Intelligence (MSRM) at the Technical University of Munich is looking for excellent postdoctoral researchers that seek an opportunity to build up and run a Neural Interfacing Lab within MSRM. This initiative will take place in close collaboration with medical experts in neurology, technologists, and researchers from diverse backgrounds. You will have the opportunity to work closely with highly ranked MSRM professors, including Werner Hemmert, Bernhard Wolfrum, Jakob Macke, Gordon Cheng, and Sami Haddadin. Please consider applying if you have a background in biomedical engineering, computational neuroscience, neural engineering, or the like with a focus on neural interfaces. For this position we are especially looking for individuals with experience in neural signal processing and interpretation of multichannel (Utah Array) recordings for the purpose of robotics and prosthetics control.

In the Neural Interfacing Lab, MSRM researchers will work to develop the next generation of neural interfaces for controlling smart assistive devices like prostheses, for example by conducting research into novel massively parallel and/or particle-based bidirectional interfaces to neural cells. The focus will be on developing theoretical mathematical modeling foundations as well as devising novel materials, which are both biocompatible and have the right communication characteristics. Furthermore, control algorithms and technologies will be developed that allow for coordinated control of particle swarms, their reorganization and bidirectional signal processing using the human neurophysiological system.



*Figure 1: Brown University-led study of a neural-controlled robot by a paralyzed patient, in which Prof. Sami Haddadin was involved.*

### About us

Located in the prosperous capital of Bavaria and home to over 39000 students, the Technical University of Munich (TUM) is one of the world's top universities (top 4 European technical universities in THE World University Ranking, top 50 in Shanghai Ranking, top 10 in Global University Employability Ranking, etc.) and home to one of the most vibrant environments in

robotics. It is committed to excellence in research and teaching, interdisciplinary education, and the active promotion of promising young scientists. TUM benefits from the healthy mix of companies and startups of all sizes headquartered in the region and is tightly connected to regional research hospitals. The university also forges strong links with companies and scientific institutions across the world.

The TUM Munich School of Robotics and Machine Intelligence (MSRM) is directed by Prof. Sami Haddadin. The MSRM is a globally visible interdisciplinary research center for machine intelligence, which is the integration of robotics, artificial intelligence and perception. Its three central innovation sectors are the future of health, the future of work, and the future of mobility. More than 50 professors from various TUM faculties cooperate within the framework of MSRM.

### **How to apply?**

The following documents are needed for applications:

- A motivation letter
- A detailed CV
- Email addresses of at least two references

Interested applicants should send us the necessary documents via email to: [applications@msrm.tum.de](mailto:applications@msrm.tum.de) quoting “Postdoc Application, Neural Interfacing Lab” in the e-mail subject line. The positions will be filled as soon as possible and only shortlisted candidates will be notified. Preference will be given to applications received before October 31st, 2019.

TUM has been pursuing the strategic goal of substantially increasing the diversity of its staff. As an equal opportunity and affirmative action employer, TUM explicitly encourages nominations of and applications from women as well as from all others who would bring additional diversity dimensions to the university’s research and teaching strategies. Preference will be given to disabled candidates with equal qualifications. International candidates are highly encouraged to apply.

### **Technische Universität München**

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