



Technische Universität Berlin



Technische Universität Berlin offers an open position:

Student assistant (40-80 hours per month)

Faculty IV: Electrical Engineering and Computer Science - Institute of Software Engineering and Theoretical Computer Science - Machine Learning

Reference number: IV-SB-0044-2025 (starting at 01/07/25 / limited for two years / closing date for applications 07/07/25)

Working field:

The Intelligent Biomedical Sensing (IBS) Lab at TU Berlin's BIFOLD / Machine Learning Department develops miniaturized wearable neurotechnology and body-worn sensors for unobtrusive monitoring of the embodied brain in the everyday world. It uses machine learning on multimodal sensor data, together with environmental context information toward intelligent monitoring and individualized comprehensive understanding of physical and mental states and risk factors. To learn more visit www.ibs-lab.com/mission-statement.

We are looking for a student research assistant in the domain of Signal Processing and Scalable Data Management for Deep Learning on Brain Imaging Data.

Tasks to be carried out under guided supervision:

- 40 %: Dataset Acquisition and Processing: Support in identifying and acquiring recent publicly available datasets through an extensive literature review, handling downloads, ensuring compliance with standard data formats (e.g., BIDS, SNIRF) and support handling of large-scale data storage.
- 30 %: Data Quality Assessment: Assist in generating structured data-quality assessment reports for both in-house curated datasets (e.g., from the IBS lab) and externally acquired datasets.
- 30 %: Support of Deep Learning Model Development: Support of Deep learning model development for preferred tasks, focusing on data pre-processing pipeline design, data augmentation, and deep learning architecture design.

Requirements:

Required:

- Excellent knowledge in computational neuroscience, computer science, information technology, electrical engineering, or a similar field.
- Very good theoretical knowledge of deep learning model design and biomedical signal processing.
- Competent programming and scripting skills in Python (including libraries such as NumPy, Scikit-Learn, PyTorch, and Xarray).
- High proficiency in written and spoken English.
- Enrollment at a German university.

It's a plus:

- Hands-on experience with one or several of the following: Signal processing and quality assessment focusing on functional Near Infrared Spectroscopy (fNIRS), Electroencephalography (EEG), or any other biomedical signals.
- End-to-end deep learning model development and assessment, hands-on experience in popular models such as CNNs, TCNs, Transformers and Large-scale foundation models and in dealing with version control tools, e.g., GitHub.
- Experience with database management systems design for deep learning model development. Handling large-scale, multi-dimensional biosignal time-series data.
- Team player and good communicator as well as pronounced analytical and conceptual skills.
- High level of initiative, self-motivation, and results orientation.

Please send your application in English via email to petra.dudakova@tu-berlin.de.

Party responsible for specialist area / point of contact for job posting: Dr.-Ing. Alexander v. Lühmann

Period of employment: from 01.07.25, for two years

Apply to: petra.dudakova@tu-berlin.de (Application in English language please)

Please submit your written application including cover letter, your CV, certificate of enrollment, and where applicable, current transcript of records, with the reference number to the place of employment indicated above.

In the interest of promoting equality opportunities for men and women, applications from women with suitable qualifications are particularly encouraged.

The vacancy is also available on the internet at
<https://www.personalabteilung.tu-berlin.de/menue/jobs/>

