Technische Universität Berlin

Technische Universität Berlin offers an open position:

10 positions - Research Assistant - salary grade E13 TV-L Berliner Hochschulen - 1st qualification period (PhD candidate)

part-time employment may be possible

Join the 'Berlin Institute for the Foundations of Learning and Data' (BIFOLD; www.bifold.berlin) as a doctoral student in our Graduate School, where you will contribute to cutting-edge research in Data Management, Machine Learning, and their intersection. BIFOLD conducts scalable agile fundamental research in the field of AI in the German AI metropolis of Berlin. The institute is part of the network of six national competence centres for artificial intelligence research in Germany. Their joint task is to further establish Germany's leading position as top-tier location for research on AI technologies.

Doctoral students in the BIFOLD Graduate School benefit from comprehensive guidance by renowned international scientists, interdisciplinary exchange, and professional development opportunities at one of the world's leading AI research centres. Alongside cutting-edge research projects we offer access to international conferences, summer schools, workshops, and a variety of professional development opportunities, including comprehensive mentoring, funding for conference visits, and guest scientist programs. BIFOLD stands for an international, collegial and family-friendly working environment.

Faculty IV - Berlin Institute for the Foundations of Learning and Data (BIFOLD)
Reference number: IV-631/24 (starting at 01/10/25 / for 4 years / closing date for applications 03/02/25)

Working field:

Based on the overarching research foci of BIFOLD, the Graduate School offers PhD projects in the areas of current challenges in AI, Data Science and distributed analysis of large amounts of data, with a focus on Data Management, Machine Learning, and their intersection; including the development of novel theories, algorithms, and technologies, as well as prototypical systems and tools.

Our research groups in the field of Data Management

- Database Systems and Information Management (Prof. Dr. Volker Markl),
- Data Integration and Data Preparation (Prof. Dr. Ziawasch Abedjan),
- Management of Data Science Processes (Prof. Dr. Sebastian Schelter),
- Big Data Engineering (Prof. Dr. Matthias Böhm),
- Big Data Analytics for Earth Observation (Prof. Dr. Begüm Demir),
- Distributed Data Stream Processing in Heterogeneous Environments (Dr. Steffen Zeuch)

and in the area of Machine Learning

- Machine Learning (Prof. Dr. Klaus-Robert Müller),
- Machine Learning and Security (Prof. Dr. Konrad Rieck),
- Probabilistic Modeling and Inference (Dr. Shinichi Nakajima),
- Intelligent Biomedical Sensing (Dr. Alexander von Lühmann),
- Machine Learning for Molecular Simulation in Quantum Chemistry (Dr. Stefan Chmiela)

address cutting-edge challenges in artificial intelligence and data science. You can find further details at https://www.bifold.berlin/research/workgroups.

We are offering five positions focused on Data Management and five on Machine Learning, each aligned with one of our research groups. Brief descriptions of the current research projects and associated doctoral subjects of the individual BIFOLD research groups can be found on our website https://www.bifold.berlin/education/thesis-opportunities. Applicants are encouraged to explore the research groups and select the research areas that align with their interests in the application. The positions include teaching tasks.

Requirements:

- Successfully completed academic university degree (Master, Diplom or the equivalent) in computer science (e.g., theoretical, methodological-practical, or technical computer science) or closely related fields of study with a focus on at least one BIFOLD core area,
- Good programming skills (e.g., Python, Java, Scala, C/C++, Rust),
- For positions in the field of Data Management: hands-on experience in the use and (optionally) implementation of big data systems (e.g., Apache Flink, Apache Spark, Dask) or database systems (e.g., PostgreSQL)
- For positions in the area of Machine Learning (ML): knowledge of machine learning theories and methods (e.g., core methods, deep neural networks), practical experience in developing and applying ML algorithms, experience with linear algebra / neural network frameworks (e.g., NumPy, PyTorch, TensorFlow, JAX),
- For positions in the intersection of Data Management/Machine Learning: hands-on experience in applied ML (feature

and model selection, ML frameworks, model evaluation and debugging), data integration, data science pipelines, data quality, as well as (optional but advantageous) experience in multi-modal data representations, alignment, data-centric ML pipelines, and ML for applications such as health-care or remote sensing
- The ability to teach in German and/or in English is required; willingness to acquire the respective missing language skills

Desirable:

- Early experience in research and paper writing is an advantage
- Experience in teaching and didactic competence is an advantage

We are looking for highly motivated, curious, enthusiastic, and results-oriented researchers with excellent academic records and strong research interests in the areas of Data Management, Machine Learning, and their intersection.

Please send your application, quoting the job **reference number** and including the usual documents (in particular, filled-in application form (https://www.bifold.berlin/fileadmin/user_upload/Content/Graduate_School/BIFOLD_GS_application_form.pdf), letter of motivation, latest CV, copies of your Bachelor's and Master's certificates, official copies of your academic transcripts, list of publications, and names and contact details of at least 2 referees whose letters should be available by the deadline of this call), preferably in English, only by e-mail as one file in PDF format to **Prof. Dr. Volker Markl** and **Prof. Dr. Klaus-Robert Müller**, at **gsapplication@bifold.tu-berlin.de**.

By submitting your application via email you consent to having your data electronically processed and saved. Please note that we do not provide a guaranty for the protection of your personal data when submitted as unprotected file. Please find our data protection notice acc. DSGVO (General Data Protection Regulation) at the TU staff department homepage: https://www.abt2-t.tu-berlin.de/menue/themen_a_z/datenschutzerklaerung/ or quick access 214041.

To ensure equal opportunities between women and men, applications by women with the required qualifications are explicitly desired. Qualified individuals with disabilities will be favored. The TU Berlin values the diversity of its members and is committed to the goals of equal opportunities. Applications from people of all nationalities and with a migration background are very welcome.

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