

October 9, 2025

The Zuse Institute Berlin (ZIB) is a non-university research institute under public law of the state of Berlin, dedicated to interdisciplinary research in applied mathematics and data-driven science. Within the research group Interactive Optimization and Learning (IOL), we are offering a position in the field of deep generative models, anomaly detection, and density estimation, starting as soon as possible, for a

Researcher (f/m/d)

on a full-time basis (39,4 hours per week), limited for two years. If the applicant meets the relevant wage requirements and personal qualifications, the salary will be based on remuneration group 13 TV-L of the pay scale for the German public sector.

Your tasks

You will contribute to cutting-edge research on improving the reliability of generative models in detecting out-of-distribution (OOD) data. Your work will focus on:

- Investigating the failure modes of current density-based and reconstruction-based anomaly detection models
- Developing and evaluating novel training frameworks such as Exposed Maximum Likelihood Estimation (EMLE) for generative models
- Designing and implementing adaptive outlier generation techniques (e.g., RODEO) using diffusion models and large language models
- Advancing unsupervised anomaly detection through adversarial training with Energy-Based Models (EBMs)
- Publishing results in top-tier conferences and collaborating with academic and industrial partners

Your profile

- A completed Master's degree or PhD in Computer Science, Mathematics, or a related field
- Strong background in machine learning, particularly in generative models (e.g., VAEs, Flows, Diffusion Models, EBMs)
- Experience with anomaly detection, density estimation, or outlier exposure methods is highly desirable
- Proficiency in Python and deep learning frameworks such as PyTorch or TensorFlow
- Excellent analytical and communication skills
- Fluent in English (spoken and written); German is a plus but not required

We offer a friendly work environment with flexible work and meeting times, excellent equipment and a challenging professional environment

as well as

- an active onboarding process to provide new employees with the skills and knowledge that are important to their success in our institute and their careers,
- a varied, future-oriented and responsible field of activity,
- professional training opportunities and support in professional development,
- an additional pension scheme (VBL),
- 30 days annual leave, flexible working hours (flexitime),
- a salary based on TV-L (collective agreement for the public service of the federal states) in accordance with qualifications and professional experience with annual bonus payment,
- capital allowance of up to € 150 per month, or alternatively a BVG job ticket plus the remaining balance,
- the use of canteens and sports programs of the Freie Universität Berlin (FUB) at reduced rates.

Applicants with disabilities will be given preference if equally qualified. Female applicants are highly encouraged to apply, since women are under-represented in natural sciences and ZIB seeks to increase the proportion of women in this field.

Please send your complete application including a curriculum vitae in tabular form with a description of previous research/thesis, list of scientific publications and references by **October 16, 2025** (date of receipt), quoting the **Reference Number IWA 25/25** as **one PDF file** to: jobs@zib.de.

For further information about the position, please refer to our website www.zib.de or contact Max Zimmer (zimmer@zib.de).

Our private policy statement regarding application data is available at www.zib.de/impressum.

For further job offers please visit our website at www.zib.de/jobadvertisement.