

Postdoctoral Researcher (f/m/d) in Probabilistic Deep Learning

KleinLab – Methods for Big Data
Scientific Computing Center (SCC)
Karlsruhe Institute of Technology (KIT)

Start date: January 1, 2027

Contract: Full-time, long-term perspective

Location: Karlsruhe, Germany

About KleinLab – Methods for Big Data

KleinLab – Methods for Big Data, led by Prof. Dr. Nadja Klein at the Scientific Computing Center (SCC) of the Karlsruhe Institute of Technology (KIT), conducts research at the intersection of Bayesian statistics and deep learning. We develop probabilistic deep learning methods grounded in Bayesian principles, with a focus on uncertainty quantification and data-efficient learning. Our work bridges statistical theory and large-scale applications, including medical imaging and autonomous driving.

Position Description

We invite applications for a postdoctoral researcher that will work within the Helmholtz Pilot Program Core-Informatics at KIT (<https://www.kiikit.kit.edu/>). The primary focus will be contributing to our research within this project on:

- **Probabilistic Modeling and Bayesian Inference:** Focusing on uncertainty quantification and principled statistical learning.
- **Continuous and Adaptive Learning:** Developing frameworks for autonomous knowledge acquisition and overcoming catastrophic forgetting.
- **Intersymbolic Systems:** Integrating symbolic priors or physical constraints into deep learning architectures for data-efficient adaptation in real-world applications.

Responsibilities

The postdoctoral researcher will:

- Conduct joint research in probabilistic deep learning.
- Publish research results in leading machine learning, statistics, and AI venues.
- Manage organizational aspects of our role in the core-informatics program.
- Initiate and strengthen scientific collaborations within KIT, the Helmholtz association, and with external partners.
- Contribute to research proposals and grant applications.
- Supervise and mentor students.
- Help shape a collaborative environment and contribute ideas and initiatives that enhance the team's research and social culture.

Candidate Profile

We are looking for a highly motivated researcher who has:

- A completed PhD in Computer Science, Machine Learning, Statistics, Mathematics, or a closely related field.
- Strong expertise in machine and deep learning.
- A solid background in statistical modeling and probabilistic inference.
- A solid background in mathematics.
- A strong publication record in relevant peer-reviewed venues.
- Experience with modern machine learning frameworks (e.g. PyTorch).
- Excellent written and verbal communication skills in English.

What We Offer

- A contract of 2–3 years at 100% E13 TV-L, with possibility of extension.
- A research-oriented position at one of Germany’s Excellence Universities.
- Access to state-of-the-art GPU clusters and high-performance computing at SCC.
- Opportunities for collaboration, e.g., with leading Helmholtz centers (e.g., DKFZ, GFZ), networking, and career development.
- Regular opportunities for scientific exchange through internal reading clubs, seminars, and team events such as retreats.
- A diverse and inclusive research environment with team members from over 10 nationalities and backgrounds in engineering, mathematics, statistics, and related fields.

Application

Please submit the following documents as a single PDF:

- Cover letter describing your research interests and motivation
- Curriculum vitae
- List of publications
- Brief research statement (max. 2 pages)
- Contact details of 2–3 academic referees

Applications should be sent to:

Prof. Dr. Nadja Klein and Dr. Moussa Kassem Sbeyti
nadja.klein@kit.edu and moussa.sbeyti@kit.edu

Review of applications will begin immediately and continue until the position is filled.