

Hier
entsteht
Zukunft!



UNIVERSITÄT
DES
SAARLANDES

Foto: Oliver Dietze

Saarland University is a campus university that is internationally recognized for its strong research programmes. Fostering young academic talent and creating ideal conditions for teaching and research are a core part of the university's mission. As part of the University of the Greater Region, Saarland University enables students and staff to share and exchange knowledge and ideas between disciplines, between universities and across borders. With over 17,000 national and international students, studying more than a hundred different academic disciplines, Saarland University is a diverse and dynamic learning environment. [Saarland University is officially recognized as one of Germany's family-friendly higher-education institutions and with a combined workforce of more than 4,000 it is one of the largest employers in the region.]

The Chair for Clinical Bioinformatics (CCB) is inviting applications for the following position commencing at the earliest opportunity.

Doctoral Research Position (m/f/x)

Reference number W2923, salary in accordance with the German TV-L salary scale¹, pay grade: E13 TV- L, duration of employment: 3 years, volume of employment: 100 % of standard working time.

Workplace/Department:

The Chair for Clinical Bioinformatics (CCB), led by Prof. Dr. Andreas Keller, works at the interface of medicine, bioinformatics and computer science. At Saarland University, its research focuses on the molecular mechanisms of ageing and neurodegeneration, with established strengths in non-coding and microRNA biology, non-invasive biomarkers and the brain-blood axis, increasingly drawing on single-cell and spatial transcriptomics. A complementary branch at the Helmholtz Institute for Pharmaceutical Research Saarland (HIPS) focuses on microbiome and infection biology. A systemic, cross-tissue perspective connects these research areas, with a central focus on methods for machine learning and AI.

The successful candidate will join the AI for Science subunit within CCB, working under the supervision of Dr. Philipp Flotho, which develops computer vision and machine learning methods for scientific discovery, with particular emphasis on self-supervised learning, synthetic data and simulation-based approaches for learning from limited, noisy and heterogeneous datasets. Its research connects methodological advances with questions in biomedical imaging, neuroscience and bioinformatics, aiming to develop transferable methods. The position provides an

¹ TV-L = collective agreement on remuneration of public sector employees in the German *Länder*

The pay grade assigned to an employee depends on their professional qualifications and the number of years of service. Each pay grade is further subdivided into levels. Entry-level employees with no previous experience will initially be assigned a level 1 rating. After one year at level 1 of the E10 pay grade, an employee will move up to level 2. After a further two years, the employee will move to level 3, etc.

opportunity to pursue fundamental methodological research in close collaboration with experimental and clinical researchers.

The position is located at the Center for Bioinformatics on Saarland University's Saarbrücken campus, within the Saarland Informatics Campus. Close ties to HIPS and the PharmaScienceHub, access to high-performance computing infrastructure, and collaborations across computer science, biology, medicine and pharmaceutical research provide the setting for an interdisciplinary doctorate.

Job requirements and responsibilities:

The successful candidate will develop computer vision and machine learning methods for robust biomedical representation learning from heterogeneous clinical and imaging data. The methodological focus will be on world models, self-supervised learning, synthetic and procedural data generation, protocol and acquisition variability, domain adaptation, and robust model evaluation.

The overarching goal is transferable AI methods for biomedical and spatial scientific data with applications such as spatial single-cell sequencing data and routine neonatal imaging films.

The responsibilities include:

- Developing world-model-based and self-supervised learning methods for biomedical imaging and multimodal clinical and bioinformatics data
- Modelling acquisition variability, protocol differences, synthetic/procedural noise, domain shift and other real-world sources of variance
- Building reproducible machine learning pipelines for training, evaluation, ablation studies and benchmarking
- Evaluating robustness, calibration, uncertainty and generalization across heterogeneous clinical sites and acquisition settings
- Preparing models and pretrained representations for integration into federated learning workflows together with project partners
- Working closely with clinical, bioinformatics, radiology, explainable-AI and federated-learning collaborators in the BPD-KI.de consortium and others
- Publishing results in leading computer vision / machine learning venues, such as CVPR, ICCV or ECCV, as well as in high-impact biomedical, bioinformatics and AI-for-science journals

The position is intended to lead to a doctoral degree. Depending on the final thesis topic, supervision arrangement and admission requirements, the candidate may pursue doctoral registration through either the Medical Faculty leading to Dr. rer. nat., or the Faculty of Mathematics and Computer Science leading to Dr.-Ing. or Dr. rer. nat.

Your academic qualifications:

- Completed scientific university studies in computer science, visual computing, data science, applied mathematics, bioinformatics, biomedical engineering or a comparable subject area (M.Sc. or equivalent) with strong background in machine learning, computer vision, mathematical modelling, optimization, statistical learning or related methodological areas. A German grade average in the range of **1.0–1.7**, or an equivalent international degree result, is desirable.
- Language skills (according to GER): Very good written and spoken English (C1 or higher), including the ability to communicate scientific findings clearly in interdisciplinary discussions, presentations and publications. German language skills are desirable but not required.

The successful candidate will also be expected to:

- Have experience in machine learning, deep learning, computer vision, visual computing or biomedical data analysis, demonstrated through successful research projects, thesis work, software contributions or publications
- Have strong Python programming skills and understanding of software engineering principles, as well as hands-on experience with PyTorch or a comparable deep learning framework, including version control, automated testing and maintainable software development, ideally demonstrated through public code repositories

- Have practical experience with agent-based software development, including agentic coding workflows, and be able to define tasks clearly, guide implementation, and critically review, test and validate generated code against technical requirements and scientific objectives
- Be familiar with reproducible machine learning workflows and experiment tracking, using tools such as MLflow, Weights & Biases or comparable solutions to document configurations, code and data versions, evaluation results and model artifacts
- Have experience in at least one of the following areas: self-supervised learning, generative models, domain adaptation, uncertainty estimation, robust representation learning, geometric computer vision, scientific imaging, multimodal learning
- Be interested in interdisciplinary work and willing to engage with scientific questions outside their immediate core area of expertise
- Be able to work independently on scientific topics and to coordinate requirements in an interdisciplinary team
- Have an interest in compiling research results into scientific publications and presenting them at international conferences
- Follow principles of good scientific practice, reproducible research and responsible handling of sensitive biomedical data
- Language skills (according to GER): Very good written and spoken English (C1 or higher), including the ability to communicate scientific findings clearly in interdisciplinary discussions, presentations and publications. German language skills are desirable but not required (*e.g.: German -C2*) (*option necessary language skills*)

What we can offer you:

- A flexible work schedule allowing you to balance work and family, among other things the possibility of teleworking
- Secure and future-oriented employment with attractive conditions
- A broad range of further education and professional development programmes (for example language courses)
- An occupational health management model with numerous attractive options, such as our university sports programme
- Supplementary pension scheme (RZVK)
- Discounted tickets on local public transport services ('Job-Ticket' of the saarVV)
- Job bike leasing (JobRad)

We look forward to receiving your **meaningful online application** (in a PDF file) by **05.10.2026** to Philipp.flotho@uni-saarland.de. Please include the reference number W2923 in the subject line of the e-mail.

If you have any **questions**, please contact us for assistance. Your contact:

Email: Philipp.Flotho@uni-saarland.de

Pay grade classification is based on the particular details of the position held and the extent to which the applicant meets the requirements of the pay grade within the TV-L salary scale. Part-time employment is generally possible.

If you have obtained a foreign university degree, a proof of the equivalence of this degree with a German degree by the Zentralstelle für ausländisches Bildungswesen (ZAB) is needed before hiring. If necessary, please apply for this in time. You can find more information at <https://www.kmk.org/zeugnisbewertung>.

Unfortunately, neither costs for attending an interview at Saarland University nor costs for any certificate evaluation by the ZAB can be reimbursed in principle.

We welcome applications regardless of gender, nationality, ethnic and social origin, religion/belief, disability, age, and sexual orientation and identity. In accordance with its policy of increasing the proportion of women, the University actively encourages applications from women. Applications from severely disabled persons will be given preferential consideration in the event of equal suitability.

When you submit a job application to Saarland University you will be transmitting personal data. [Please refer to our privacy notice for information on how we collect and process personal data in accordance with Art. 13 of the Datenschutz-Grundverordnung](#). By submitting your application you confirm that you have taken note of the information in the Saarland University privacy notice.