

Research profile for applicants

Name of DKFZ research division/group:	Artificial Intelligence in Oncology, B450
Contact person:	Prof. Moritz Gerstung moritz.gerstung@dkfz.de +49 6221 42 3478
Group homepage: <i>Visit this website for further information on current research and recent publications.</i>	https://www.dkfz.de/en/artificial-intelligence-in-oncology

RESEARCH PROFILE AND PROJECT TOPICS

The Division of Artificial Intelligence in Oncology develops machine learning and statistical methods to advance our understanding of cancer and human disease through large-scale biomedical data. Our research combines artificial intelligence, computational biology, and clinical data science to develop models that improve disease prediction, diagnosis, and precision medicine. We collaborate closely with clinicians, epidemiologists, and experimental researchers, translating methodological advances into applications with real-world clinical impact.

A major research direction of the division is the development of foundation models for longitudinal healthcare data. Delphi-2M, published in *Nature*, is a generative transformer model trained on large-scale electronic health records that learns patterns of disease progression across more than 1,000 diseases. By modelling complete health trajectories over time, Delphi-2M provides a general framework for predicting disease risk, understanding multimorbidity, identifying clinically meaningful disease representations, and generating realistic future health trajectories. The project combines advances in modern AI with large population-scale datasets and international clinical collaborations.

We are seeking a highly motivated postdoctoral researcher to contribute to the next generation of foundation models for healthcare. Potential research directions include developing novel architectures for longitudinal multimodal data, integrating electronic health records with genomic, molecular, or imaging data, improving representation learning and model interpretability, and designing methods for robust evaluation and clinical translation. Depending on the successful candidate's interests, projects may also explore transfer learning, uncertainty quantification, causal modelling, and efficient adaptation of foundation models to new clinical settings.



CONNECTING THE DOTS.
TO ADVANCE RESEARCH CAREERS

International Postdoc Program
www.dkfz.de/postdoc

The successful candidate will join an interdisciplinary and highly collaborative research environment with access to exceptional computational infrastructure, unique population-scale datasets, and extensive collaborations within DKFZ and with leading international partners. We welcome applicants with backgrounds in machine learning, computer science, statistics, computational biology, mathematics, physics, or related quantitative disciplines who are excited to develop cutting-edge AI methods for biomedical research and precision medicine.

The project offers substantial opportunities to publish in leading journals, collaborate internationally, and contribute to the development of foundation models that have the potential to transform biomedical research and healthcare.



CONNECTING THE DOTS.
TO ADVANCE RESEARCH CAREERS

International Postdoc Program
www.dkfz.de/postdoc