

Research profile for applicants

Name of DKFZ research division/group:	MAIGE – Mechanistic AI in Genomics (B260)
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Group homepage: <i>Visit this website for further information on current research and recent publications.</i>	https://www.dkfz.de/en/computational-genomics-and-systems-genetics/maige-group-mechanistic-ai-in-genomics

RESEARCH PROFILE AND PROJECT TOPICS

We are a computational genomics group particularly interested in the application of AI and ML in a way that respects biological mechanisms and is both mathematically and statistically sound. We work with large-scale cohort data (population genetics, electronic health records) and cellular assays (single-cell omics and CRISPR perturbation assays).

Our group is seeking a highly motivated postdoctoral researcher to contribute to a collaborative project that aims to understand the gene regulatory dynamics underlying immune-related adverse events, a severe side effect of cancer immune checkpoint therapies. This project is an international collaboration which will combine unique data resources and expertise from collaborators at the University Hospital Heidelberg (single-cell sequencing and Perturb-seq of patient-derived immune cells) and the University Medical Center Groningen (eQTL studies) together with publicly available genome-scale perturb-seq data in primary T cells.

The successful candidate will develop new methods to infer gene regulatory networks from these multimodal data sources, building on our group's existing expertise in AI and mathematical modeling in this domain. The project offers the opportunity to work at the cutting edge of computational approaches in genomics, while at the same time applying research outputs to clinical data and generating discoveries with strong potential for translation to clinical practice and therapeutics.

Important note: This position is supported by external funds and therefore advertised for *three years*, in contrast to the usual two.



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We are looking for candidates with a background in computer science, statistics, mathematics, physics, and/or engineering, or a degree in biological science with demonstrated excellence in quantitative analysis. Experience with one of the focus areas of the project, including deep learning, mathematical and statistical modeling, and gene regulatory network inference, is welcome.

Our group values creativity, a rigorous scientific mindset, kindness, and positive team spirit. We encourage candidates from diverse professional and personal backgrounds to apply.



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