

PhD Students in AI–Driven Human Genomics and Computational Biology

Statistical Genetics Laboratory, School of Life Sciences, Westlake University, Hangzhou, China

The opportunity

The Statistical Genetics Laboratory at Westlake University is seeking highly motivated PhD students to work at the interface of artificial intelligence, human genetics, and multi–omics.

As a PhD student in the lab, you will help build the next generation of AI models for population–scale genomic and multi–omics data, developing methods that turn genome variation into biological insight, and insight into new therapeutic targets. If you are excited by deep learning, large–scale data, and questions of human health and disease, we would like to hear from you.

About the lab

The Statistical Genetics Laboratory studies human genome variation to understand how genetic differences shape disease and health, providing the theoretical and technical foundation for better prevention, diagnosis, and treatment. Our current research directions include (but are not limited to):

- AI in genomics and multi–omics
- Single–cell and spatial omics in human genetics
- Population genomics–based discovery of new disease therapeutic targets
- Pangenome, structural variants, and population health
- Cancer genetics and multi–omics
- Development of high–performance bioinformatics methods and tools

The lab has a strong track record in developing widely adopted methods and tools, including GCTA–GREML, COJO, SMR, fastGWA, and gsMap, and maintains rich resources spanning human genetics, multi–omics, single–cell, and spatial datasets. PhD students have access to a dedicated GPU platform and

high-performance computing cluster capable of supporting the development and training of large-scale AI models.

Learn more at <https://yanglab.westlake.edu.cn/>

About the Principal Investigator

Professor Jian Yang is Chair Professor of Statistical Genetics at Westlake University and a New Cornerstone Investigator. He received his PhD from Zhejiang University in 2008, completed postdoctoral training at the QIMR Berghofer Medical Research Institute in Australia (2008–2011), and held positions from Research Fellow through to Professor at the University of Queensland (2012–2020) before joining Westlake University in 2020. His research focuses on the genetics and genomics of complex human traits, and he has developed a series of pioneering methods that are now widely used across human genetics. He was the 2012 recipient of the Centenary Institute Lawrence Creative Prize, in recognition of his contribution to solving the 'missing heritability' paradox. He was subsequently awarded the Australian Academy of Science Ruth Stephens Gani Medal for distinguished research in human genetics (2015), the Prime Minister's Prize for Science (Frank Fenner Prize for Life Scientist of the Year, 2017), and was selected for the New Cornerstone Investigator Program (2025). He has published over 240 papers, which have received >130,000 citations.

What you will do

- **Learn and master cutting-edge AI methods**, including graph neural networks, Transformers, and diffusion models, and apply them to single-cell and spatial multi-omics research and its integration with human genetics, building solid methodological foundations through hands-on projects.
- **Grow into the development of large-scale AI models**, such as foundation models, large language models, and AI agents, for population genomic and multi-omics data, starting from well-defined problems with close mentorship,

and progressing toward independently designing and leading your own research directions aimed at interpreting genome variation and discovering therapeutic targets.

- **Develop as a well-rounded researcher:** collaborate with colleagues within the lab and across other research groups, learn how interdisciplinary science is done at the intersection of AI and genomics, and benefit from the lab's collective expertise in statistics, computation, and biology.
- **Build your scientific track record:** receive training in scientific writing and presentation, publish your work in leading journals and conferences, and present at national and international meetings, with full support from the lab.

What we are looking for

- A Bachelor's or Master's degree (obtained or expected by the time of enrolment) in computer science, artificial intelligence, bioinformatics, computational biology, biostatistics, or a related field, with a strong academic record.
- Integrity, strong scientific motivation, sound academic ethics, and a collaborative spirit, i.e., someone who is self-driven and eager to learn and to advance research proactively.
- A solid programming foundation or a strong aptitude to learn (e.g. Python, R, Shell). Familiarity with machine learning / deep learning frameworks such as PyTorch or TensorFlow is a plus. Experience with genomics or multi-omics data is advantageous but not required (training will be provided).
- Strong English communication skills, meeting Westlake University's English-language requirements for PhD admission.
- Research experience (e.g. undergraduate or Master's research projects, internships, publications, preprints, or competition results) is a plus, but is not a strict requirement; we value potential and motivation above all.
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What we offer

- A competitive PhD stipend and full tuition support, in line with Westlake University's policies.
- A stable working environment and a world-class research platform, with close mentorship from the PI and tailored support for your career development according to your interests and goals.
- Deep institutional strength in complex-trait genetics, statistical genetics, and bioinformatics method development, together with extensive data resources and cutting-edge computing infrastructure (GPU platform + HPC cluster).
- Support for attending national and international conferences, and opportunities for collaboration and exchange with leading research groups worldwide.
- A vibrant, international campus community in Hangzhou, one of China's most dynamic and liveable innovation hubs.

How to apply

PhD admission at Westlake University operates through the University's graduate admission system (application—assessment process). Prospective students are strongly encouraged to contact the lab in advance. Please send the following materials as PDF files to statgenlab@westlake.edu.cn, with the email subject line: "Application for PhD: [Your Name]"

1. A detailed CV.
2. A personal statement, including your research experience and interests, a brief description of the problems you would like to work on, and your reasons for applying.
3. Academic transcripts (Bachelor's and, if applicable, Master's).
4. (Optional) Representative work, such as publications, preprints, or code repositories.

Westlake University is an equal-opportunity employer committed to building a diverse and inclusive research community. We welcome applications from candidates of all backgrounds.