



Yale University School of Medicine

Postdoc and Associate Research Scientist Positions in AI/ML for Complex Diseases Zhang Lab, Yale University School of Medicine

The Zhang Lab (<https://sai-zhang.com/>) in the Department of Biomedical Informatics and Data Science (BIDS) at Yale School of Medicine is recruiting multiple Postdoctoral Fellows and Associate Research Scientists (ARSs) to join our dynamic team. We seek candidates who are passionate about developing cutting-edge AI/ML methods to integrate genetic, multiomic, and clinic data for uncovering disease mechanisms, accelerating therapeutic discovery, and advancing personalized health care.

About Us: The Zhang Lab will relocate to Yale BIDS, starting in October 2025. Our mission is to solve human complex diseases leveraging AI/ML and large-scale biomedical data, ultimately improving human health. Our representative works include *Cell* (2018), *Nature Biotechnology* (in press), *Neuron* (2022), *Cell Systems* (2022), and *Genome Research* (2025). Our research is currently supported by NIH ESI MIRA, Yale startup funding, the Motor Neurone Disease Association, and the Packard Center for ALS Research. Our research interests include but not limited to:

1. *ML for single-cell genetics*. Use ML to integrate genetics with single-cell genomics for fine-mapping causal variants, genes, and cells. Ref.: 10.1101/2024.05.14.594252
2. *Genomic language models (gLMs)*. Develop novel gLMs to (1) decode context (e.g., cell types, environment)-dependent genetic regulation and (2) learn personalized genome representations. Ref.: 10.1101/2024.03.30.24305115
3. *Deep learning for genetic risk prediction*. Ref.: 10.1101/gr.279694.124
4. *Proteomics-based disease diagnosis and prediction*. Ref.: 10.1101/2025.02.19.25322536
5. *Integrative analysis of single-cell multiomics and spatial transcriptomics*, with a focus on amyotrophic lateral sclerosis (ALS).

Required Qualifications:

1. A PhD (or equivalent) in Computer Science, Biostatistics, Bioinformatics, or a related field.
2. Demonstrated expertise in AI/ML model development for biomedical applications or in genetic/single-cell/spatial data analysis.
3. A strong publication record in peer-reviewed journals or conferences.
4. Good communication skills, a collaborative mindset, and strong self-motivation.
5. For ARS candidates: at least two years of postdoctoral research experience.

Application Instructions:

Interested candidates should email (1) a Cover Letter describing your research background and interests, (2) the latest CV including a list of publications, and (3) contact information for at least three references, to Dr. Sai Zhang (sai.zhang@yale.edu). SUBJECT LINE: [Applicant Name] – Zhang Lab [Position Title] Application. Applications will be reviewed on a rolling basis.

We are also recruiting graduate students (<https://cbb.yale.edu/graduate-program>) and visiting students!