

Zeyu Bian

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EDUCATION

1. **University of California, San Diego, Halicioğlu Data Science Institute** Sept 2025– June 2030
2. **University of Science and Technology of China, School of Mathematical Sciences** Sept 2021 – June 2025
 - Bachelor of Science
 - Overall GPA: 4.07/4.30 Rank: 2/162
 - Selected courses: *Real Analysis(H)(95)*, *Functional Analysis(97)*, *Probability Theory(95)*, *Mathematical Statistics(99)*, *Regression Analysis(100)*, *Multivariate Analysis(100)*, *Stochastic Processes(96)*, *Applied Stochastic Processes(97)*, *Introduction to Machine Learning(95)*.

RESEARCH EXPERIENCE

1. **University of Science and Technology of China** March 2025 – June 2025

Position: Research Assistant, PI: Prof. Tianhao Wang

Project: Towards Understanding Momentum Acceleration in River-Valley Loss Landscape

- Analyzed gradient descent with heavy-ball momentum under recently proposed river-valley loss landscape.
- Theoretically showed that momentum can accelerate the progress along the river by enabling use of a substantially larger learning rate.
- Validated the insights with experiments on synthetic functions and language model training.

2. **Yale University, Department of Biostatistics** March 2024 – March 2025

Position: Research Intern, PI: Prof. Hongyu Zhao

Project: Larger SNP List and Functional Annotations Help to Boost polygenic risk scores(PRS) Accuracy

- Used PLINK to perform data cleaning and quality control for multi-population with raw 1000 Genomes Project (1KGP) genotype data and converted genotype data between different building formats.
- Developed revised hierarchical bayesian model based on JointPRS to incorporate functional annotations and account for larger SNP list.
- Enhanced model performance across various traits by introducing self-adaptive hyperparameters.
- Benchmarked model performance on simulated data set and UKBB/BBJ real data set to evaluate the improvement of adding additional enriched functional information.

Awards & Honors

- **Huangyu Memorial Scholarship** 2025
- **National Scholarship (Top 1%)** 2024
- **National Scholarship (Top 1%)** 2023
- **China National Petroleum Corporation(CNPC) Scholarship (Top 2%)** 2022
- **Excellent Student Scholarship** 2021

Teaching Experiences

- **Teaching Assistant for Regression Analysis Course** 2024

LANGUAGE & TOOLS

- **Programming Languages and Tools:** R, Python, Mathematica, Matlab, Latex, Linux