

Yilin Li

Transgender Female

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Research Interest

Data Analysis
Single-Cell Multiomics/Transcriptomics
Biostats
AI for Med

Strengths

Mathematics

Functional Analysis and Operator Algebra

Numerical PDEs Statistics

Optimization

Programming & Tools

Python with Pytorch and Pandas

GPU Programming(NVCC) MATLAB

Linux

Data Mining

Data Analysis

Single-Cell Multiomics/Transcriptomics

Biostats AI for Med

English Proficiency (TOEFL)

Reading: 29
Listening: 29
Speaking: 22
Writing: 22

Research Experience

Neural Network Modeling of Alzheimer's Disease Dynamics Current
Research with Associate Professor Wenrui Hao at Penn State University.

Research Page

- Innovation in model structure: Hybrid Neural Network with Polynomials.
- Transfer learning and sensitivity analysis for constructing personalized models.
- Uncertainty Quantification, Parameters clustering and AD stage identification.

Research Intern @ HKUST(GZ) Feb 2025 — June 2025

Working with Assistant Professor Zecheng Gan on developing Tensor Neural Networks to solve high-dimensional partial differential equations (PDEs).

- Mathematically derive algorithms for Convolutional Tensor Neural Networks(CTNNs) with coupled input dimensions
- Applying Deep Galerkin/Ritz Methods for Numerical PDEs
- Profiling and Accelerating training process

Research Assistant @ HKUST(GZ) Oct 2025 — Current

Working with Dr.Cuiping Pan's group, developing ODE Models for modelling the course and dynamics of autoimmune diseases such as rheumatic diseases and cardiovascular diseases.

Projects

Open-Problems---Multimodal-Single-Cell-Integration

Applied and developed pipelines for multi-omics data analysis.

- Feature Engineering (Data cleaning, SVD/VAE)
- Regression Modeling (FNN/VAE/Transformer)
- Project Repository

Education

School of Mathematical Sciences, Nankai University 09/2021 - 06/2025
Nankai District, Tianjin

Excellent courses: Data Mining(93), Functional Analysis(87), Operating System and Network(91), GPU Programming(90), Signal and Systems(90), Data Structure and Algorithms(94), Numerical Approximating(91), Mathematical Modeling(92)

Administrative Assistant at the Department of Physical Education, Nankai University (1.5 years)

Honors and Awards

- S Prize in Mathematical Contest in Modeling (MCM) 2024, COMAP**
Solved Lamprey Resource Availability and Sex Ratios Problem.
- Outstanding Student Union Cadre (09/2023)**
Recognized for organizing student union activities and leadership contributions.
- First Class High School Scholarship (02/2021)**
Awarded for ranking first in the grade for one semester.
- Outstanding Teenager in Beilin District (06/2019)**
Nominated for exemplary academic performance and good conduct, awarded by Beilin District Education Bureau.