Yilin Li

Transgender Female

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Research Interest

Data Analysis
Bioinformatics/Biostats
Machine Learning
High Performance Computing/ML Systems
AI for Med
Applied Math

Strengths

√x̄ 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 Algoritms(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.

CV Last Update: 2025/10/14