

Yiran Li

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Education

Northwestern University, IL — Master's in Applied Mathematics (Sep 2024 – Jun 2025)
GPA: 3.70/4.0

Relevant Coursework: Partial Differential Equations, Numerical Solutions of PDEs, High Performance Computing, Bifurcation Theory, Asymptotic Perturbation Methods, Geophysical & Astrophysical Fluid Dynamics

Pennsylvania State University, PA — B.A. Mathematics & Philosophy; Minor in Latin (Sep 2019 – May 2024)
GPA: 3.59/4.0

Honors: Dean's List (Fall 2021, Spring 2022, Fall 2022, Spring 2023, Summer 2023, Fall 2023, Spring 2024)

Research Experience

Graduate Research, Northwestern University (Jun 2025 – Present)

- Collaborating with Mechanical Engineering PhD candidates on advanced statistical inference techniques.
- Implemented Bayesian Neural Networks with Variational Inference and Hamiltonian Monte Carlo for function regression.
- Applied Convolutional Hierarchical Deep Neural Network Tensor Decomposition (CHiDeNN-TD) to enhance computational efficiency.

Undergraduate Research, Pennsylvania State University (Supervisor: Prof. Daning Huang) (May 2023 – Aug 2023)

- Investigated model reduction methods in linear systems using Balanced Truncation and Balanced Proper Orthogonal Decomposition (POD).
- Computed Gram matrices with the emgr toolbox to evaluate sensitivities.
- Analyzed comparative accuracy of methods based on output error.

Eberly College of Science Summer Undergraduate Research, Pennsylvania State University (Supervisor: Prof. Ephraim M. Hanks) (May 2022 – Aug 2022)

- Conducted statistical modeling of COVID-19 transmission using real-world datasets.
- Applied Markov Chain Monte Carlo (MCMC) to estimate infection rates, validated with data from the Diamond Princess Cruise Ship.

- Estimated basic reproduction number $R_0 \approx 3.72$.
- Presented research in oral and poster formats.

Teaching & Academic Projects

Learning Assistant, Math 140, Pennsylvania State University (Aug 2022 – Dec 2022)

- Prepared tutorial materials for undergraduate students in study sections.
- Held weekly office hours to provide academic support and feedback.
- Collaborated with instructor and TAs to refine course content and pacing.

Technical & Language Skills

- Programming: Python, C, R, MATLAB, Mathematica
- Languages: Mandarin (Native), English (Fluent), Latin (Intermediate)