Zijia LI

Address: Philadelphia, USA E-mail: lizijia@seas.upenn.edu

EDUCATION

School of Engineering and Applied Science, **University of Pennsylvania, USA** *Aug. 2025- May 2027(Expected)*
MSE in **Systems Engineering** Engineering **GPA:** 4.0/4.0

School of Mathematics, **University of Nottingham, UK** *Sept. 2023- June 2025*
Joint Program with **University of Nottingham Ningbo China (UNNC)** *Sept. 2021- June 2023*
B. S. in **Mathematics with Applied Mathematics**
GPA: 88/100 (UK System); 3.97/4.0 (WES)

RESEARCH EXPERIENCE

University of Pennsylvania **Philadelphia, USA**
Research Assistant @ Generative Machine Learning Research (GMLR) Lab *Supervisor: Prof. Jiatao Gu*
World Models and Generative Models *Oct. 2025 – Present*

- ✧ Exploring JEPA-style world models, comparing generative and regression-based formulations and reproducing several recent approaches (e.g., DINO-WM, V-JEPA-style models).
- ✧ Developed infrastructure for model-based planning and analysis, including self-designed stochastic Push-T variants, navigation tasks (e.g., point maze), and realistic datasets (e.g., DROID). Proposed a gradient-based planning variant of GRASP tailored for generative world models, with RAE-based latent visualization and MPC-style evaluation.
- ✧ Equilibrium Matching (EqM) for generative modeling; reproduced ImageNet results and investigated its theoretical and empirical connection to Flow Matching.

Zhejiang University **Hangzhou, China**
Research Assistant @ Intelligent Computing and System Lab *Supervisor: Prof. Qinming He*
Flow Matching for Generative model *May. 2025 – Sept. 2025*

- ✧ Experimented with code examples of flow matching by implementing a new probability path on the lab server.
- ✧ Gained understanding of flow matching, including mean flow and rectified flow.

Parallel Sampling for Diffusion Models *Aug. 2024 – Oct. 2024*

- ✧ Analyzed convergence of parallel sampling in Diffusion Models (DDPM, Score-based Generative Models, DPMSolver, DDIM).
- ✧ Explored several parallel sampling methods, such as PCM, ParaSolver, and DDDM.

Research Assistant @ Center for Data Science
Supervisor: Prof. Wenguang Sun, Director of the Center for Data Science *June 2023 - Sept. 2023*

- ✧ Investigated multiple testing and false discovery rate (FDR) and its variations (FWER, FDX, Lfdr…) for online inference.

Northwestern University **Evanston, USA**
Remote Research Intern @Modern Artificial General Intelligible and Computer Systems (MAGICS) Lab
Supervisor: Prof. Han Liu, Director of MAGICS Lab *Feb. 2024 – Oct. 2024*

- ✧ Researched fine-tuning strategies (e.g., RLHF, DPO) and acceleration techniques (e.g., Consistency Models, SpeeD) for Diffusion Models.
- ✧ Explored Transformer architectures and in-context learning mechanisms.

University of Nottingham **Nottingham, UK**
Research Assistant @ School of Mathematical Sciences
Supervisor: Prof. Kristoffer van der Zee and Assis. Prof. Luis Espath *Feb. 2024 – Oct. 2024*

- ✧ Utilized Physics-Informed Neural Networks (PINNs) with Python package JAX to solve 3D wave equations in spherical coordinates.
- ✧ Applied PINNs to solve ODEs and neural networks (eg. BP) for classification and regression tasks.

PATENT AND PUBLICATION

[1] Jianhai Chen, …, Zijia Li, …, Qinming He, ***Intelligent Question-Answering Method and System for Courses Based on Retrieval-Enhanced Generation and Large Models,*** *Application number: 2024114368243, Under review*

AWARDS AND HONORS

- ✧ Outstanding Students, Dream Scholarship for Group, UNNC *2022-2023*
- ✧ Dean's Scholarship, UNNC *2023 & 2022*
- ✧ Zhejiang Provincial Scholarship *2022-2023*
- ✧ *Honorable Mention,* **The Mathematical Contest in Modeling (MCM)** *2023*
- ✧ Third Prize, Formula Student Electric China 2022 *2022*

HIGHLIGHT OF SKILLS

Programming: Python, R, Latex, MATLAB, etc.
Languages: TOEFL (iBT): 109 (Speaking 26); **GRE General Test:** 326+3.5

LEADERSHIP AND VOLUNTEER EXPERIENCE

University Admissions Volunteer Coordinator, ***2022 Academic Year*** **Ningbo, China**

- ✧ Supervised and coordinated student volunteers across six provinces to support university admissions activities.
- ✧ Conducted campus tours for prospective students and families. Responded to applicants' inquiries via the admissions call center, providing accurate and timely information.

PROJECTS

Image2GPS, ***Team of 3*** *Oct. 2025 – Dec. 2025*

- ✧ Built a camera-location prediction model using ConvNeXt + custom classifier, converting the campus map into grid cells for coarse classification followed by coordinate regression.
- ✧ Compare with ResNet-18 baseline model.

Multimodal Stock Price Prediction with Hybrid Deep Learning, ***Team of 3*** *Oct. 2025 – Dec. 2025*

- ✧ Built a multimodal stock-price forecasting pipeline using 5-min AAPL data: SQL-based cleaning/merging of price, fundamentals, and FinBERT-extracted social-sentiment features.
- ✧ Trained an LSTM + MLP hybrid model integrating fundamentals and sentiment, and benchmarked performance against an ARIMAX baseline.

River Flow Prediction, ***Team of 5*** *Feb. 2025 – April 2025*

- ✧ Designed a hybrid SARIMA-LSTM model to forecast daily river flow in the UK based on historical time-series data.