

# Yifan Yao

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## EDUCATION

**New York University**  
*M.S. in Mathematics*

**New York**  
*Aug 2023 - May 2025*

**University of Illinois Urbana-Champaign**  
*B.S. in Mathematics*

**Urbana, IL**  
*Aug 2021 - May 2023*

## SKILLS

- **Languages:** Python, C++, Java, SQL, Bash
- **Technologies:** Git, Linux, REST API, Docker, Flask, NumPy, pandas, OpenCV
- **Systems:** OOP, multi-threading, test-driven development, data structures and algorithms

## EXPERIENCE

### Coded Snake

**New York, NY**

*Game Programmer – Tricker Trigger*

*June 2025 – Present*

- Refactored and extended core battle system in an active turn-based JRPG inspired by Final Fantasy and Chrono Trigger.
- Focused on polishing core battle system: player actions (skills, items, combos), and combat UI/XP flow.

### New York University

**New York, NY**

*Teaching Assistant*

*Sept 2024 – Dec 2024*

- Supported Algebra and Functions courses; held weekly office hours and guided 50+ students through problem-training.

### Nanjing Nari Relay Electrical Co., Ltd.

**Nanjing, China**

*Research Intern*

*June 2023 – Aug 2023*

- Built ROS simulation framework for robotic control, integrating SSH remote debugging; reduced test time by 30%.
- Collaborated with a 5-member team to deliver 2 prototype demos for robot-dog system.

### Eagle Automatic Control Engineering Company

**Nanjing, China**

*Hardware Developer Intern*

*July 2021 – Aug 2021*

- Designed 4-floor elevator control system using Siemens S7-200 PLC; optimized logic reduced failure rate by 15%.
- Developed and tested hardware assembly, ensuring 100% compliance with standards and requirements.

## SELECTED PROJECTS

### Structured Credit Analytics & Pricing Model

*March 2025 – April 2025*

- Built Monte Carlo simulation engine (Python) to price pass-through MBS using 100+ shocked forward rate paths with OAS model.
- Calculated WAL, PV01, and spread sensitivity; visualized impact curves.

### Stock Trading Behavior Analysis

*Fall 2024*

- Analyzed 1M+ trade records for frequency, volume imbalance, bid-ask spreads; normalized trade patterns across time.
- Trained classification models (decision trees, random forests) with 85%+ accuracy detecting abnormal behaviors.

### Face Image Super-Resolution

*Feb 2025 – March 2025*

- Implemented regression models (linear, ridge, neural networks) to reconstruct high-res images; achieved PSNR improvement of 15dB over baseline.
- Benchmarked 3+ model architectures and optimized runtime performance by 20%.

### AI Talking Program

*Jan 2025 – Present*

[https://github.com/Vanish1999/my\\_ai\\_project](https://github.com/Vanish1999/my_ai_project)

- Built a conversational AI with fuzzy query handling, database import/export, and modular NLP components.

### CLO Cash Flow & Waterfall Modeling

*April 2025 – May 2025*

- Developed a monthly cash flow model (Python) for CLOs, simulating tranche payments, default scenarios, and cash allocation under various conditions.
- Implemented par-based Overcollateralization (OC) tests with dynamic waterfall; analyzed 50+ default rate paths to assess trigger points and tranche loss impacts.

### Personal Portfolio Website

*Aug 2025 – Present*

<https://vanish1999.github.io>

- Designed and deployed a personal portfolio using **Next.js**, **TypeScript**, and **Tailwind CSS**, showcasing game and quantitative finance projects.
- Configured **GitHub Actions** for continuous deployment to GitHub Pages, enabling automatic updates.