

Yifan Yao

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🌐 <https://github.com/Vanish1999>

☎ (+1)217-974-1757

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

Game Programmer – Tricker Trigger

New York, NY

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

Teaching Assistant

New York, NY

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.

Research Intern

Nanjing, China

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

Hardware Developer Intern

Nanjing, China

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

- 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.
- Identified default thresholds causing \$1 loss in different tranches; visualized tranche-level losses and OC ratios across simulation paths.