

Ray Li

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🌐 LiSiruiRay

in [sirui-ray-li](#)

Education

New York University

New York, New York

B.A. in Mathematics (Honor), B.A. in Computer Science, Major GPA 4.0; TA of Calculus

Sep. 2022 - Jul. 2025

New York University, Abu Dhabi AI/ML Research Assistant under Professor Djellel Difallah

Abu Dhabi, UAE

Jan. 2024 - Jul. 2024

Work Experience

300K.xyz (First Tier company in DEX), Software Development Engineer Internship

Beijing, China Jun. 2023 - Sep. 2023

- **Designed Real-Time Data Processing Systems:** Developed a signal querying system improving data read speed by 40% using a custom algorithm, enabling real-time predictions with time series ML. Enhanced robustness and integrated Python with C++ for a 17x performance boost.
- **Optimized Data Querying and Management:** Implemented an auto-config process and RESTful APIs, boosting query speed by 80% with a volume-check algorithm. Introduced data validation to ensure accuracy and continuity.
- **Developed Versatile Cryptocurrency SDK (Repo):** . Built a Python SDK for cryptocurrency trading, featuring transaction processing, liquidity management, and comprehensive trading operations.

Capybara AI (AI for finance), Software Development Engineer/ Co-founder

New York, NY Jan. 2023 - Sep. 2023

- **Developed RESTful APIs for Efficient Stock Data Querying:** Implemented APIs leveraging Postgresql for historical data storage and Redis as a buffer for recent data, achieving a 60,000x improvement in query speed.
- **Designed Back Inference System for Stock Price Fluctuation Detection:** Created algorithms to identify significant stock price changes, followed by retrieval, clustering, and sorting of news to pinpoint key events influencing stock fluctuations.
- **Innovated Macro Analysis System for Stock Market:** Devised a 'macro analysis' system to assess the indirect impact of policies, news, and events on the stock market, introducing the concept of an 'event vector' and employing transformer models for analysis.

Awards and Honors

Jul. 2024

Honors: With prize worthy 160,000 RMB (22,200 USD) for AI4Math Summer Program At Peking University

Beijing

Nov. 2023

Honors: With \$12K award, accepted to NYU Abu Dhabi Undergraduate Research Assistantship

New York

Nov. 2023

Honors: Accepted to Microsoft Startup Program (1% acceptance) with \$18K worthy prize, NYU startup bootcamp

New York

Feb. 2023

Contest: "Best First Time Hacker" with \$200 prize in the Hackathon at New York University

New York

Research Experience

AI4Math Mathematical optimization formalization and theorem proving

Peking University, Beijing

Research Assistant Under Prof. Zaiwen Wen (20 participants selected from all over China)

Jul. 2024 - Aug. 2024

- **(Repo)** formalization of the ADMM algorithm in convex analysis using the Lean language
- Studied extensively on convex optimization, Lean, machine learning (NLP), mathematical logic, category theory, and more

Investigating Transformer-based Model on non-stationary time series data

Abu Dhabi, UAE

Paid Research Assistant Under Prof. Djellel Difallah

Jan. 2024 - Present

- **(Repo)** Developed auto-experiment scripts, boosting research productivity by over 150% and facilitating extensive model performance evaluation.
- **(Repo)** Visualized experiment data with interactive callback real time calculation interface
- Discovered the relationship between prediction precision with the input vector length, label length, prediction length, and data period length.
- Analyzed predictive patterns in both stationary and non-stationary data, highlighting Autoformer's effectiveness in non-stationary contexts with its auto-correlation feature, surpassing standard transformers.

Other Experience

Contests, Competitor

- **International Collegiate Programming Contest (ICPC) NY** Sep. 2023 - Present
- **William Lowell Putnam Mathematical Competition NY** Oct, 2023 - Present

Hackathons, Full Stack Engineer

- **"EXplain"-Video Agent Repo**, HackMIT *MIT, MA.* Sep. 2023
 - Developed a Chrome extension using GPT-3.5 and youtube_transcript_api for YouTube transcript analysis.
 - Implemented a binary search with OpenAI's API for precise, context-aware video search.
 - Built a RESTful API backend on AWS EC2 with a dynamic JavaScript frontend for enhanced usability.
- **"TripGenie"-Travel AI Agent Repo**, HackPrinceton *Princeton, NJ.* May, 2023
 - Developed "TripGenie," an AI agent for planning travel journeys with Flask.
 - Integrated ChatGPT API for generating travel plans based on user preferences, including location, budget, and days of travel.
 - Produced three detailed daily travel plans with closed prices, including cost of food, activities, travel, and hotel.

Gitlet (Java), Software Development Engineer

Berkeley, CA Jun. 2022 - Aug.

- Developed a Java-based Version Control System with cryptographic hashing and file persistence
- Replicate fundamental Git system features through decoding and testing

Open Source Project

Meal Pair platform (Java), Software Development Engineer

Manhattan Dec. 2022 - present

- Developed a full-stack social platform for dinner party scheduling with features for posting event details. Utilized Thymeleaf, MySQL, and Spring, enhancing scalability and interactivity.
- Integrated Google Maps API and adopted MVC architecture, improving user experience and boosting development efficiency by 50%.

2-D World Exploration Game (Java), Software Development Engineer

Berkeley, California Jul. 2022 - Sep

- Developed a Java game with dynamic mechanics like traps and toggleable lights, featuring seed-based map generation for navigation challenges.
- Enhanced user experience with multi-threaded rendering, save/load capabilities, and consistent world generation for replayability.