

Ryan Liu

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EDUCATION

Northwestern University

B.S. Computer Science and Mathematics | GPA: 3.93/4.00

Expected Graduation: June 2027

Evanston, IL

Relevant Coursework: Machine Learning, Operating Systems, Data Structures, Algorithms, Software Engineering

AWARDS

ICPC North America Championship Qualifier *ACM-ICPC*

2024

USACO Platinum *USA Computing Olympiad*

2024

American Invitational Mathematics Exam (Top 0.27% scorer) *Mathematical Association of America*

2022, 2023

EXPERIENCE

Software Development Engineer Intern

June 2025 – Sep 2025

Amazon Web Services (AWS)

Seattle, WA

- Incoming Summer 2025

Founding Software Engineer

June 2024 – Feb 2025

Juxta Technologies

Chicago, IL

- Led the development of analytics-driven logistics tools for a \$6M health-tech startup backed by \$600K from Lynett Capital, Velocity Catalyst, and Authentic Ventures, improving hospital efficiency and reducing operational costs
- Developed algorithms to minimize idle time, optimize task assignment, and streamline workflows using Python, JavaScript, and Firebase, boosting patient transporter efficiency by 44% and reducing transport times by 7.6 minutes per trip

Undergraduate Researcher

January 2024 – Present

Northwestern AI and Security Lab

Chicago, IL

- Applied machine learning to predict time-to-exploitation and severity of Cybersecurity Vulnerabilities and Exposures
- Built CVE data pipelines from diverse datasets, leveraging APIs, web scraping, and data integration techniques
- Developed Northwestern Cybersecurity Early Warning System with Next.js and React to visualize CVE trends and risks

Software Engineer Intern

October 2023 – August 2024

International Center for Advanced Internet Research

Chicago, IL

- Used machine learning to optimize Data Transfer Nodes (DTNs) with NVMeoF, achieving 400GB/s throughput
- Implemented a JupyterHub-based controller to detect DDoS attacks in real time using Sketch-based Entropy Estimation
- Deployed Python and Bash scripts to monitor network traffic, identify anomalies, and estimate the likelihood of attacks

Undergraduate Teaching Assistant - Discrete Math

September 2024 – Present

Northwestern University

Chicago, IL

- Delivered a full lecture to a class of 107 on results in elementary number theory and encryption
- One of 2 undergraduates to set problems in the recent history of the course; Held weekly office hours to 200+ students

PROJECTS

Offline Judge | *Personal Project* | [github](#) | 15 hours

HTTP Requests, Webscraping, C++, Python

- Developed an offline judge for olympiad problems, with test case scraping and runtime/memory limit enforcement.
- Designed an system using g++, subprocess, and ulimit, ensuring accurate performance benchmarking.

Customer Churn Prediction | *Personal project* | [github](#) | 15 hours

Python, Machine Learning, Data Processing

- Developed and deployed ML models, achieving 96% accuracy and 97% F1 score for churn prediction
- Conducted data analysis to identify key churn indicators like income levels and card preferences for actionable insights

SKILLS

Programming Languages: Python, C++, JavaScript, TypeScript, Java, SQL, MATLAB, R

Softwares and Tools: Git, Bash, React, React Native, Next.js, Node.js, HTML, CSS, NumPy, scikit-learn, OpenCV, REST APIs, GraphQL, Google Cloud Platform, AWS, Jupyter, PostgreSQL, MongoDB, Docker, CI/CD pipelines