Ryan Liu

Chicago, IL | rliu2400@gmail.com | linkedin.com/in/rliu2400 | github.com/rliu2400

Education

Northwestern University **Expected Graduation: June 2026**
B.S Computer Science and Mathematics | GPA: 3.93/4.00 Evanston, IL
Relevant Coursework: Machine Learning, Operating Systems, Data Structures, Algorithms, Software Engineering

Skills

Programming Languages: Python, C++, Go, Rust, JavaScript, TypeScript, Java, SQL, MATLAB, R, HTML
Softwares and Tools: Git, Bash, React, React Native, Next.js, Node.js, NumPy, PyTorch, Pandas, TensorFlow, scikit-learn, OpenCV, REST APIs, GraphQL, Google Cloud Platform, AWS, Jupyter, PostgreSQL, MongoDB, Docker, CI/CD pipelines

Experience

Software Engineer **June 2024 – Present**
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

Machine Learning Engineer/Undegraduate 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*

- One of 2 undergraduates selected to write exams and content in the history of the course
- Held weekly office hours to assist 200+ students in mastering discrete math concepts and problem-solving techniques

Projects

Flashcard SaaS | *Personal project* | *github* | *10 hours* **Next.js, Clerk, Stripe API, OpenAI API**

- Developed an AI-powered flashcard app using Next.js, Firebase, and OpenAI to generate personalized study materials.
- Integrated Stripe for seamless subscription management and billing, and Clerk for secure user authentication.

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.

Awards

ICPC North America Championship Qualifier (Top 5% of 797) *ACM-ICPC* 2024
American Invitational Mathematics Exam (Top 0.27% of 300,000) *Mathematical Association of America* 2022, 2023
USA Computing Olympiad Platinum Division (Top 4% of 20,000) *USA Computing Olympiad* 2022