Xiaomin Liu

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Education

New York University **May 2026**
Bachelor of Arts in Computer Science (with Honors) and Mathematics **GPA**: 3.8
Coursework: Data Structures, Algorithms, Operating Systems, Programming Languages (Graduate level), Parallel Computing

Experience

New York University High Speed Research Network Lab **Sep 2024 – Present**
Software Engineer Intern — Corelink Server Team New York, NY
- Implementing features and services in Rust for Corelink, a low-latency networking framework for research applications

New York University Courant Institute of Mathematical Sciences **Sep 2024 – Present**
Teaching Assistant New York, NY
- Conducting weekly office hours and grading assessments for Basic Algorithms (CSCI-UA 310) supporting over 50 students

Niantic **May 2024 – Aug 2024**
Software Engineer Intern — Pokémon GO: Maps/Explore/AR Team Bellevue, WA
- Processed coastline data with BigQuery to define an ocean dataset, eliminating 8 billion (40% total) Pokémon spawnpoints
- Reduced weather API calls by 78% by implementing logic in Java to invalidate ocean weather cells, saving $280k annually
- Developed a distributed quadtree merging algorithm to normalize S2 cells in Apache Beam, compressing geodata by 99.1%
- Integrated Sentry into Pokémon GO's client using C#, .NET and Unity to monitor unhandled exceptions and crashes, capturing 1.4M daily errors alongside relevant metadata for improved diagnostics

New York University Center on Race, Inequality, and the Law **Mar 2024 – May 2024**
Research Assistant New York, NY
- Automated legislative bill searching and tracking process to Google Sheets, saving 10+ weekly hours of manual searches
- Built a Legiscan API client in Python and pandas to increase tracked bills by 175% and provide real-time status updates

Vantage.sh **July 2023 – Oct 2023**
Software Engineer Intern New York, NY
- Launched Azure Active Resources, a Ruby on Rails feature filtering Azure spending by resource metadata for 20,000 users
- Designed a Temporal Workflow to concurrently fetch 100,000+ records of resource metadata from 30 Azure services
- Integrated multi-series line graphs using HTML and JavaScript to visualize related resource costs over 30-day periods

Projects

S2shell | Rust, C++
- Ported Google's S2 Geometry Library to Rust for robust computational geometry and spacial indexing on the sphere
- Implemented core S2 data structures and algorithms including S2Point, S2CellId, S2Cell, and S2Region
- Created a custom linear algebra module supporting 2D/3D vector operations like dot products, cross products, etc.

Multiplayer Chess | Python, Flask, JavaScript, WebSocket, SQL (PostgreSQL), HTML, CSS, Docker
- Led a team of 3 in developing an online multiplayer chess website where users can play against each other via links
- Implemented real-time board updates, a dynamic move history table, and a chat feature using JavaScript and HTML
- Challenges included verifying moves, handling spectators joining mid-game, and asynchronous move broadcasting

Skills

Languages: Python, Rust, Java, C, C++, C#, JavaScript, TypeScript, Ruby, SQL, HTML, Bash, CSS
Technologies: Pandas, NumPy, Unity, .NET, Django, Flask, Docker, Azure, GCP (BigQuery, Dataflow, GCS), Sentry, Linux
Concepts: System Design, Computer Networking, Distributed Systems, Compilers, REST APIs, Backend, Unit Testing