Aaron Wu

Software Engineer
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Education

University of California, San Diego — San Diego, CA
M.S. Computer Science, GPA: 3.77/4 — *Expected Grad March 2026*

University of California, Santa Cruz — Santa Cruz, CA
B.S. Computer Science, GPA: 3.90/4 — *Sept 2020 – June 2024*

Experience

Lawrence Livermore National Labs — Livermore, CA
Software Engineering Intern — *June 2025 – Sept 2025*

- Developed search features for a data repository application using Angular, Spring Boot, Solr, and Postgres, improving data discoverability for users
- Extended one-box search to support multiple ID fields by defining new Solr schema fields, enhancing metadata search service, and wiring new Angular UI components
- Implemented permission facets by extending indexing services to include access-control metadata, allowing users to filter search results by access level
- Added metadata-scoped prefix matching to the one-box search, allowing users to find items by partially typed metadata values

jLab in Smart Sensing, UCSC — Santa Cruz, CA
Full Stack Developer — *Mar 2023 – Sept 2024*

- Built a data monitoring platform using React, Flask, and Postgres to ingest and analyze data from a sensor network
- Engineered a REST API with Flask to log voltage, current, and temperature sensor data into a Postgres database
- Constructed an interactive data dashboard with live graphs using React, featuring filter and zoom capabilities
- Developed support for simultaneous large CSV file exports using Redis and Celery for distributed task processing
- Implemented a CI/CD pipeline with GitHub Actions and Docker to automate testing and deploy APIs to AWS

Tech4Good, UCSC — Santa Cruz, CA
Undergraduate Research Fellow / Software Engineer — *June 2022 – June 2024*

- Led development of a web application for collaborative, AI-assisted interview transcript annotation using Angular, NgRx, RxJS, and Firebase, adopted by 100+ students each quarter in a business strategy course
- Built end to end UI components and data services to deliver real time crowdsourced AI feedback for students
- Developed an admin dashboard for use by class instructors to manage homework assignments and project teams
- Improved Firestore database schema structure to optimize page loads, reducing database reads by 40%

Projects

Memory Profiler | *TypeScript, Rust*

- Built a local-first macOS memory profiler in Rust and TypeScript for real-time process analytics
- Implemented a Rust backend to parse kernel virtual memory statistics and parameters for memory usage data
- Constructed a TypeScript frontend to display real-time process and memory statistics in a sortable table
- Integrated embedded pgvector and Ollama to deliver local RAG-based process explanations

Distributed, Fault-Tolerant Video Storage Platform | *Go*

- Built a distributed, fault-tolerant video storage platform in Go, leveraging gRPC for communication between services and FFmpeg for media playback
- Implemented a fault-tolerant metadata service using the Raft consensus algorithm
- Developed a scalable file storage layer with consistent hashing to evenly distribute content across servers

Technical Skills

Languages: Python, TypeScript, JavaScript, Java, Rust, Go, C, SQL, HTML, CSS
Backend: Spring Boot, Flask, Redis, Postgres, Solr, Firebase
Frontend: React, Angular, Next.js, RxJS, Redux
Infrastructure & Tools: Docker, Kubernetes, AWS (ECS, EC2, CloudFront), CI/CD (GitHub Actions)