

Charlton Shih

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Education

University of California, Los Angeles (UCLA)

Los Angeles, CA

Bachelor of Science in Computer Science

Expected June 2027

Relevant Coursework: Software Construction, Data Structures & Algorithms, Networks, Object-Oriented Programming, Operating Systems, Computer Graphics, Programming Languages, Linear Algebra, Discrete Math, Machine Learning

Teaching: CS35L (Software Construction), MATH 32B (Multivariable Calculus)

Experience

Software Engineering Intern

October 2025 – Present

AfterQuery

San Francisco, CA (remote)

- Engineered a full-stack RL training environment for a GRC platform, designing and implementing scalable APIs, frontend interfaces, and unified **Docker/nginx** deployment using **TypeScript**, **FastAPI**, and **SQLAlchemy/SQLite**
- Shipped a Python **MCP server** exposing tool calls for Excel report generation (charts, formulas), reducing manual data entry by **50%+**, and integrated it into a **Harbor** benchmarking pipeline using **LLM** verifiers to score outputs
- Developed a Python **CLI/pip** package for LLM-driven FK-safe data generation with async batching (**10–20+** calls/row)

Software Engineer

October 2025 – Present

Bruinwalk (UCLA Student Media)

Los Angeles, CA

- Refactored backend and **Docker**, **React**, and **Django** workflows for **41,000+** users, cutting loading times by **20%**
- Implemented a **Redis** caching layer for enrollment ingestion, cutting **100%** of redundant upstream API calls across cycles
- Scaled **PostgreSQL** backend and parsers on **10 DigitalOcean VMs**, supporting over **1M+** views monthly site visits

Software Engineer

March 2025 – Present

ClubhouseUCLA

Los Angeles, CA

- Shipped a full-stack platform on **Vercel** serving **600+** monthly active users with optimized **SQL** queries ranking **200+** reviews across **1,400+** club entries by rating, popularity, and recency to improve data accuracy and user discovery
- Integrated an admin review moderation pipeline with anonymous alias generation supporting **11,000+** unique user identities
- Facilitated frontend delivery across a **14-person** team, translating design specs into production **React** components

Machine Learning Researcher

September 2025 – January 2026

Pellegrini Lab & Roychowdhury Lab

Los Angeles, CA

- Built genomic tokenization and embedding pipelines using **Python**, **PyTorch**, and **Hugging Face** Transformers to analyze plasma RRBS DNA, processing over **17 million+** reads to classify samples using **SeqIO**, **NumPy**, **Pandas**, and **XGBoost**
- Applied PCA, UMAP, and LLM-based genomic embeddings to visualize methylation variance relationships across samples

Projects

Imprint | [QWER Hacks 2026 Winner](#) | *TypeScript, PostgreSQL, Prisma, Docker, Vercel*

February 2026

- Launched a zero-upload provenance platform using Ed25519 signatures and client hashing for tamper-proof digital ownership
- Pioneered perceptual image hashing via 2D DCT to detect modified copies, with indexed lookups enabling verification

Terminal-Bench | *Typescript, FastAPI, AWS, Harbor, Docker, Redis, Supabase, Vercel*

January 2026

- Built a scalable AI benchmarking platform with AWS(ECS, EC2, CloudFront), Next.js + FastAPI and Supabase that automated evaluation and data, handling **750+** concurrent jobs across **150+** trials with reward scoring, reducing batch times

embd-IDE | *Svelte 5, TypeScript, Rust, Tauri 2, CodeMirror 6, xterm.js*

February 2026 – Present

- Developed a cross-platform desktop IDE with a **20 MB** bundle, supporting **18+** languages, and integrated terminal
- Hardened **Rust** backend with **31+** IPC handlers, path traversal prevention, directory blocking, and **CSP** enforcement

Technical Skills

Languages: Python, TypeScript, JavaScript, Rust, C++, C, Java, SQL

Frameworks: React, Next.js, Svelte, Django, FastAPI, Node.js, PyTorch, Scikit-learn, XGBoost, Tauri

Infrastructure & Tools: Git, Docker, AWS (EC2, ECS, CloudFront), PostgreSQL, Redis, MongoDB, SQLite, Supabase, Vercel, GCP, Linux