

Charlton Shih

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Education

University of California, Los Angeles (UCLA)

Bachelor of Science in Computer Science

Los Angeles, CA

Expected June 2027

Relevant Coursework: Software Construction, Data Structures & Algorithms, Networks, Object-Oriented Programming, Operating Systems, Computer Graphics, Digital Logic Design, Linear Algebra, Discrete Math, Differential Equations

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

Experience

Software Engineer Intern

AfterQuery

October 2025 – Present

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
- Integrated an MCP server to abstract complex workflows, reducing debugging time by 25% and accelerating model training
- Authored and executed detailed QA plans for a full-stack application, validating state consistencies and user flow
- Engineered a Python CLI/pip package for LLM-driven synthetic data generation using schema introspection and FK-safe seeding; added async batching for 10–20+ model calls per row, improving generation throughput by approximately 3-4x

Software Engineer Intern

Bruinwalk (UCLA Student Media)

October 2025 – Present

Los Angeles, CA

- Refactored backend and Docker, React, and Django workflows for 50,000+ monthly users, cutting loading times by 20%
- Automated scripts to populate new enrollment information utilizing Redis for caching and cutting API calls by 33%
- Scaled PostgreSQL backend and parsers on 10 DigitalOcean VMs, supporting over 1M+ views monthly site visits

Software Engineer

ClubhouseUCLA

March 2025 – Present

Los Angeles, CA

- Launched and implemented a full-stack web app on Vercel, serving 200+ users with access to UCLA club information
- Constructed and optimized SQL queries and API integrations to sort over 100+ reviews across 1,400+ club entries, streamlining data aggregation, improving accuracy, and workflow efficiency for development and deployment
- Worked with a 14-person cross-functional team to translate Hi-Fis into functional profile and home pages using TailwindCSS

Machine Learning Researcher

Pellegrini Lab & Roychowdhury Lab

September 2025 – Present

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

Lead Software Engineer

AdOptimal

December 2024 – August 2025

Los Angeles, CA

- Designed a full-stack web app using React.js, Node.js, and MongoDB, providing a centralized platform for businesses
- Streamlined server and client architecture, enhancing data retrieval processes by 30%; developed with REST APIs to enable efficient and maintainable internal communication with secured user authentication utilizing OAuth 2.0 and JWT
- Cut API calling up to 50% by optimizing indexed partial matching, debouncing, and automated web scraping pipelines

Projects

PillPal | Typescript, React.js, MongoDB, Express, Arduino, Websocket, Git/Github

January 2025 – June 2025

- Directed a 16-person cross-disciplinary team to build a full-stack IoT automated pill dispenser that tracks usage and sends real-time notifications using integrated Google Calendar, OAuth 2.0, and Google Cloud IAM

UCLA Design | JavaScript, React.js, Node.js, MongoDB, Express, Git/Github

January 2025 – April 2025

- Architected a MERN full-stack web platform with RESTful API endpoints with real-time drag-and-drop interface in React, integrating state management to streamline layout creation and editing for 100+ interactive dorm room designs

Technical Skills

Languages & OS: Python, JavaScript, TypeScript, C++, C, Java, SQL, HTML, CSS, Windows, MacOS, Linux

Frameworks: React, React Native, Next.js, Node.js, Django, FastAPI, Flask, PyTorch, Scikit-learn

Tools: Git, Docker, Kubernetes, PostgreSQL, SQLite, MongoDB, Redis, Selenium, GCP (OAuth 2.0, IAM), Jupyter, OpenCV