Charlton Shih

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Education

University of California Los Angeles Sep 2023 – Jun 2027
Bachelors of Science in Computer Science 3.5/4.0

Relevant Coursework: DSA, OOP, Discrete Mathematics, Linear Algebra, Computer Organization, ODE, Multivariable Calculus, Software Construction, Operating Systems

Experience

Undergraduate Researcher Jul 2024 – Present
Physics & Astronomy Lab *Los Angeles, CA*

- Collaborated with a 10-person team to develop autonomous surgery robots under Prof. Arisaka and Yunbo Wang
- Established servomotor communication using ROS2, ESP32, and Python, improving synchronization latency
- Boosted tracking efficiency by 60% through OpenCV for ultrasound reconstruction and biopsy operations
- Developed and applied imitation learning with ACT and motor outputs based on mobile aloha

Undergraduate Researcher Dec 2025 - Present
Physical Sciences and Mathematics Lab *Los Angeles, CA*

- Collaborated with a three-person team to develop DCM cascading bandits for a multiplayer setting, aiming to establish an upper sublinear regret-bound
- Analyzed and experimented with Thompson Sampling and linear UCB indexes in multi-agent and multi-click bandit framework

AdOptimal Dec 2025 - Present
Full Stack Developer *Los Angeles, CA*

- Ad-Optimal streamlines advertising opportunities between student organizations and businesses, making it easier for companies to promote their services while generating revenue for student groups
- Built and maintained RESTful API endpoints, integrating frontend components and handling requests for advertising transactions and payments
- Integrated OAuth 2.0 authentication to enhance security and enable seamless third-party access
- Organized and efficiently collected data using web scrapers utilizing selenium and webdriver

Course Assistant (CS35L) Mar 2025 - Present
University of California Los Angeles *Los Angeles, CA*

- Led discussion sessions of 20-30 students on topics software construction, including emacs, networks, frameworks and scripting
- Collaborated with course professors and peers to align discussion sessions with course learning objectives

Projects

Stock Market Prediction Using Machine Learning | *python, Github* June 2024 - Sep 2024

- Built data frames and visualizations with Pandas, NumPy, and Jupyter to compare predictions with targets across 10000 data points
- Trained an ML model (scikit-learn) with 50% precision; optimized with backtesting (10 years of data) and new predictors, boosting accuracy to 58.8%

UCLA Design | *Javascript, React.js, Node.js, MongoDB, Express, Git/Github* Jan 2025 - Present

- Architected a full-stack web application using React, MongoDB, and Node.js, implementing a scalable RESTful API to handle CRUD operations for user-generated room layouts
- Developed a real-time, state-managed drag-and-drop UI for furniture placement using React's component-based architecture and optimized event-driven rendering for seamless interactivity
- Designed and optimized a NoSQL document database in MongoDB, indexing user-generated layouts and integrating queryable search functionality with dynamic filtering based on room attributes, price, and user reviews

Technical Skills

Languages: Python, C/C++, Javascript/HTML/CSS, Swift, LaTeX
Tools: Jupyter, Git/Github, TensorFlow, React.js, Node.js, JSX, MongoDB, Firebase, ROS2, ESP32, Express