Samuel Chua

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EDUCATION

University of Pennsylvania   Philadelphia, PA
Master of Science in Engineering in Robotics   *Expected Graduation: Dec 2026*
- GPA: 4.00/4.00
- Relevant coursework: Machine Perception, Linear Systems, Learning in Robotics, Convex Optimization

University of California, Los Angeles   Los Angeles, CA
Bachelor of Science in Computer Science & Engineering   *Expected Graduation: Jun 2025*
- GPA: 3.84/4.00
- Upsilon Pi Epsilon - Officer (Computing Honor Society), Eta Kappa Nu - Officer (ECE Honor Society)
- Relevant coursework: Data Structures & Algorithms, Discrete Structures, Computer Architecture, Software Construction, Algorithms & Complexity, Feedback Control, Deep Learning, Operating Systems, State Estimation

TECHNICAL SKILLS

Languages: Python, C++, C, Javascript, HTML/CSS, Matlab, Verilog
Frameworks: React Native, Django REST, Tensorflow, PyTorch, ROS, Express, Next.js, Arduino, GNURadio
Libraries: React, Scikit-learn, Ardupilot, Matplotlib, Numpy, HuggingFace, Detectron2, fast.ai
Others: Linux/Unix, Git, Postman, Eagle, PCB Design

EXPERIENCE

Amazon, Boston, MA | *Incoming Software Development Intern*   Jun 2025 – Sep 2025
VECTR Lab @ UCLA, Los Angeles, CA | *Robotics Researcher*   Dec 2023 – Present
- Built spatial octrees to query point clouds 75% faster to perform change detection in dynamic environments
- Utilized Direct LIDAR-Inertial Odometry & Mapping algorithm to achieve long duration autonomy in robots
- Optimizing place recognition by leveraging KPConv networks for feature extraction to perform map merging

DSO National Laboratories, Singapore | *Robotics Algorithm Developer*   Aug 2023 – Sep 2023
- Developed Viewpoint Generation algorithm for 3D urban search, optimizing inspection for swarm robotics drones
- Built a C++ quad-tree for dynamic surface subdivision, significantly boosting inspection efficiency by 70%
- Ensured complete surface coverage by validating drone camera footprints and checking for occlusion

Tandem Space, San Francisco Bay Area, CA | *Full-Stack Developer*   Apr 2023 – Jun 2023
- Utilized React JS to streamline manual data input by 50% through intuitive entry components and listing pages
- Employed Django REST for efficient data modeling and JWT token authentication, facilitating data collection
- Developed MVP by integrating front and back-end to enhance hybrid office space matching for 120+ companies

LEMUR Lab @ UCLA, Los Angeles, CA | *Student Researcher*   Nov 2022 – Dec 2023
- Formulated a robust Deep Reinforcement Learning algorithm to optimize distribution of large-scale robot systems
- Employed decentralized controllers in Python to achieve Nash Equilibrium, enhancing Uber dispatching operations
- Publication: 3rd Author on "Population-aware Online Mirror Descent for Mean-Field Games by Deep Reinforcement Learning" International Conference on Autonomous Agents and Multiagent Systems

ACTIVITIES & PROJECTS

Association for Computing Machinery @ UCLA, Los Angeles, CA | *Dev Team Officer*   Apr 2024 – Present
- Developing ACM's membership portal with Next.js & ExpressJS, streamlining check-ins for 1,700+ members
- Managing ACM's award-winning website on Netlify and enhancing UX, supporting UCLA's largest CS club
- Automated data integration on the Dev Team page with Javascript parser scripts, improving maintenance efficiency

Pill.ai (LA Hacks 2024 Winner) | github.com/SamuelChua/pill.ai   Apr 2024 – Apr 2024
- Engineered an LLM-driven web-app with React JS & Material UI, reducing medication-related errors by 90%
- Leveraged Google's Gemini API, utilizing 1M tokens for precise speech-to-text and image-to-text translation
- Successfully deployed a user-friendly and real-time dashboard for medication verification, benefiting 500+ patients

Building A Wi-Fi Seeing Camera | github.com/SamuelChua/Wifi-Cam   Feb 2022 – Apr 2022
- Utilized a Software-Defined Radio and directional Yagi antenna to scan and detect Wi-Fi signals
- Streamlined Signal Processing using Python, Arduino, and GNURadio for spatial awareness of Wi-Fi hotspots