

# Samuel Chua

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## EDUCATION

### University of Pennsylvania

Philadelphia, PA

*Master of Science in Engineering in Robotics*

*Expected Graduation: Dec 2026*

- GPA: 4.0/4.0
- Relevant coursework: Machine Perception, Machine Learning, Linear Systems, Convex Optimization

### University of California, Los Angeles

Los Angeles, CA

*Bachelor of Science in Computer Science & Engineering*

*Jun 2025*

- GPA: 3.8/4.0
- 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, Java, 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 | *Software Development Intern*

Jun 2025 – Sep 2025

- Engineered a centralized AWS DynamoDB data transformation mechanism, reducing write operation costs by 50%
- Designed virtual middleware to generate simplified real-time data representations for 20+ downstream teams
- Implemented fill-forwarding algorithm to standardize temporal data management across 35+ business domains

### VECTR Lab @ UCLA, Los Angeles, CA | *Robotics Researcher*

Dec 2023 – Jun 2025

- Implemented a LiDAR-based change detection pipeline using pose-aligned geometric differences of 3D submaps
- Built spatial octrees to query point clouds 75% faster to perform change detection in dynamic environments
- Integrated with Direct LIDAR-Inertial Odometry & Mapping algorithm, achieving long duration robot autonomy

### 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 (YC S24), 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 – Jun 2025

- Developed ACM's membership portal with Next.js & ExpressJS, streamlining check-ins for 1,700+ members
- Managed 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](https://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