Roger Lin

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Education

University of California, San Diego — San Diego, CA
B.S. in Computer Engineering, GPA: 3.73/4.0 — *Expected Jun 2025*

University of California, San Diego — San Diego, CA
Anticipated M.S. in Machine Learning & Data Science — *Expected Jun 2026*

Coursework: Systems Programming, Data Structures & Algorithms, Operating Systems, Optimization, Machine Learning

Experience

Research Software Engineer — Mar 2024 – Present
UC San Diego - Multi-agent Intelligence and Decision Systems (MINDS) Lab — *San Diego, CA*
- Developed a Python package for multilayer agent-based simulations using Repast4py.
- Enhanced testing with automated functions to verify file reconstruction and visualize logs, reducing manual efforts.
- Optimized data structures and parallel computing to scale simulations to 50,000 agents on commercial hardware.
- Awarded SRIP scholarship and presented at the 2024 UC San Diego Summer Research Conference.
- Authored a research paper as first author, submitted to AAMAS 2025.

Software Developer — May 2023 – Jun 2024
UC San Diego - IEEE Eta Kappa Nu (HKN) — *San Diego, CA*
- Developed a full-stack Member Portal using Svelte and Django, serving 400+ users.
- Integrated APIs for dynamic, responsive views, enhancing cross-device user experience.
- Created documentation to streamline onboarding for new developers.
- Improved team collaboration by establishing workflows under tight deadlines.

Machine Learning Intern — Jun 2023 – Aug 2023
Foxconn — *New Taipei City, Taiwan*
- Conducted study on integrating LLM into business frameworks, identifying use case in internal support.
- Performed comprehensive testing of ChatGPT plugins for performance, compatibility, and delivered weekly reports.
- Assisted in curating and preprocessing datasets for object recognition models.

Projects

Autonomous Vehicle | *Python, Shell Script* — Jan 2025 – Present
- Integrated NVIDIA Jetson Nano, LiDAR, GPS, and OAK-D camera for ADAS functionalities.
- Implemented a lane-following system using OpenCV for image processing and a fine-tuned PID controller.
- Developed gesture-based controls with a Dockerized recognition model for intuitive vehicle interaction.
- Incorporated a LiDAR-based safety system using ROS2 to ensure fail-safe operation in dynamic settings.

Fall Detection Device | *Python, JavaScript* — Apr 2024
- Engineered a G-sensor-based fall detector with P2P signal transmission, reducing emergency response time.
- Designed PCB wiring for the device, enhancing practicality with a lightweight, functional build.
- 1st Place Winner - HARD Hack 2024, IEEE

Indoor Navigation System | *Python, JavaScript* — Apr 2023
- Developed a real-time navigation system using Wi-Fi signals in 24 hours.
- Built a Python server on Raspberry Pi for signal processing and triangulation.
- Designed a JavaScript interface for location visualization.
- 1st Place Winner - HARD Hack 2023, IEEE

Technical Skills & Awards

Programming: Python, C++, Java, JavaScript, ARM, C, Svelte, HTML, TypeScript, React
Developer Tools: Git, VS Code, Linux, AWS, MongoDB, Vercel, Docker
Libraries: pandas, NumPy, Matplotlib, OpenCV, TensorFlow, Keras, PyTorch, Repast4py, NetworkX
Languages: English (Fluent), Mandarin (Fluent), Japanese (Intermediate)