

Aditya Agrawal

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EDUCATION

University of California Irvine, Irvine, CA

B.S. Computer Science, Minor in Mathematics

09/2024 – (Expected) 06/2027

GPA – 3.9

WORK EXPERIENCE

FlowgenLabs, San Francisco

Software Engineer Intern, Full-Time

06/2026 – Present

Software Engineer, Part-Time

04/2026 – 06/2026

- Implemented agentic harness deployed on client-data, devising multi-role orchestration to generate provable, evidence-backed insights.
- Built tenant isolation with Postgres RLS, RBAC, and per-tenant pooling behind a DBOS durable-workflow auth layer.
- Created and maintained internal tooling regularly used by the team for ensuring code quality standards and monitoring operations

Learning Assistant ICS 33: Intermediate Python, UCI

04/2025 – 06/2025

- Ran weekly lab sections and office hours, coaching students through recursion, generators, and functional Python patterns.

Kristal.AI, Singapore

05/2023 – 08/2023

- Deployed agent-based LLM system for multi-modal data that extracts info from documents, with feedback to optimize responses.
- Developed tool to compute efficient frontier curves on client portfolio data, improving performance by 5x—used by 10+ advisors.

Web Developer, Good Karma NGO, Singapore

12/2022 – 01/2023

- Built and deployed goodkarmasg.org with React/Next and MongoDB/Fastify on Vercel; optimized for SEO and indexing.

RESEARCH

SURP Fellow, Funded Independent Research in World Models, UCI | PyTorch, MuJoCo, ROS2

06/2026 – Present

- Selected as a funded **UROP Fellow**; awarded a \$1500 stipend for 10 weeks of faculty-mentored independent research.
- Built **Omni-Hull**, an MBRL pipeline mapping robot dynamics via bounded latent-volume maximization under CBF safety constraints.
- Introduced a density-deficit metric to direct hardware sampling only where latent coverage fails, giving a quantifiable stopping rule.
- Benchmarking sample efficiency against DreamerV3 and RND baselines on a simulated 6-DOF manipulation task.

SURP Fellow, Multi-Agent RL Communication, UCI | PyTorch, MAPPO, Information Theory

06/2025 – 09/2025

- Modeled inter-agent communication as a Shannon channel, showing a continuous wave field reduced to a finite-rate noisy link.
- Rebuilt the channel as bandwidth-capped FSQ tokens with top-k attention; presented at the UCI Undergraduate Research Symposium.

Computer Vision Researcher, Wayne Hayes Group, UCI | Python, PyTorch, TensorFlow

09/2024 – Present

- Developed **PoseBench3D**, a cross-evaluation framework benchmarking 3D human pose-estimation models, enabling standardized comparison across four datasets through a single configurable interface and custom preprocessing callbacks.
- Evaluated 7 SoTA models against previously unseen datasets (published on [arXiv](https://arxiv.org/abs/2505.12511), 05/25).
- Quantified generalization gaps where in-dataset SoTA accuracy degrades under unseen viewpoints, cameras, and environments.

PROJECTS AND ORGANIZATIONS

Software Lead, Rover, Legacy Robotics, UCI | C++, ROS2, Nav2, Control Theory

11/2024 – 06/2026

- Directed software for a 35+ member team designing and manufacturing a Mars rover for the University Rover Challenge.
- Architected an end-to-end ROS2/C++ stack for fully autonomous localization, navigation, and mission planning, with sensor fusion of GPS, odometry, and visual data for pose-estimation via an Extended Kalman Filter.
- Led a sub-team of 10, teaching core concepts, distributing tasks, and tracking work against competition deadlines.

Team Lead, ZotBins, UCI | Mask R-CNN, PyTorch, Edge Inference, AWS

11/2024 – 06/2026

- Ported** Mask R-CNN waste recognition to a Turing Pi cluster, rewriting CUDA-only ops and layer caching for the Rockchip NPU.

Developer, Commit the Change, UCI | Full-Stack, ReactJS, PostgreSQL

11/2024 – 09/2025

- Built** a full-stack ReactJS/Express/PostgreSQL app for Center Stage NGO with dynamic routing, interactive UI, and database integration.

AWARDS AND RECOGNITIONS

Dean's Honor List, all 6 enrolled quarters (F24, W25, S25, F25, W26, S26)

2024–2026

UWC Young Aurora Finalist and UWCx Go Make A Difference Grant Winner (USD 1,000) - [The Bin Project](#)

2023

Singapore Google Data Center Grant (USD 30,000) - [Project FuXi](#), harnessing music to empower dementia patients.

2022

TECHNICAL SKILLS

Languages: Python, C/C#/C++, Java, JavaScript, TypeScript, HTML/CSS, Swift, Rust, Metal, GLSL, SQL

Frameworks/Libraries: React (Web/Native), Next.js, NodeJS, PostgreSQL, Redis, DBOS, PyTorch, MuJoCo, Docling, OpenCV, ROS2

Developer Tools: Git, CMake, FFmpeg, Docker, MongoDB, AWS, Vercel, DigitalOcean, SvelteKit, Jupyter, Postman