Aditya Agrawal

aditya.agrawal.a.777@gmail.com | +1 (949) 343-0466 | linkedin.com/in/aagrawal05 | adityagrawal.com | github.com/aagrawal05

Education

University of California Irvine, Irvine, CA — 09/2024 – (Expected) 06/2027
B.S. Computer Science, Minor in Mathematics — 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**, 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