




ISSAC ROY


U.S. Citizen, San Diego, CA

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Education

University of California San Diego (3.98 GPA)

March 2027

B.S. Data Science | Math Minor | Cognitive Science Minor

San Diego, CA

Courses: Data Structures, Computer Vision, Systems Programming, Computer Organization, Database Management

Experience

MC Computer Vision Lab at UCSD | Research Assistant

January 2026 – Present

- Engineered the OpenRooms++ automation pipeline on NRP Kubernetes, integrating Trellis2 and Flux 2.0 to transform coarse meshes into high-fidelity 3D assets.
- Implemented inverse rendering algorithms using SAM3D and Laval Indoor HDR to decompose generated imagery into PBR texture maps (Albedo, Roughness) for photorealistic reconstruction.

Neurocrine Biosciences | Software Engineer Intern (Data Infrastructure)

June 2025 – September 2025

- Architected, deployed, and maintained a serverless application on AWS (ECS, Lambda) to automate data ingestion, decoupling system components and reducing operational costs by \$200k annually.
- Engineered a production backend pipeline using Python and AWS Bedrock, integrating LLM endpoints with relational databases (Redshift) to automate complex document generation.
- Implemented Infrastructure as Code (IaC) using Terraform and built multi-environment CI/CD pipelines, enforcing DevOps best practices and reducing deployment latency.

San Diego County Taxpayers Association | Technical Intern

October 2024 – January 2025

- Developed a robust data ingestion pipeline using Playwright (Python) to harvest data from dynamic web pages, engineering solutions for rate-limiting and edge cases.
- Developed a high-performance frontend dashboard using Plotly Dash (React-based), implementing client-side caching and callback optimization to render large-scale datasets with sub-second latency to inform policy recommendations.

Projects

Turbo 3D Engine | C++, SDL2, Linear Algebra

March 2025

- Built a 3D graphics engine from scratch in C++, implementing a custom rasterization pipeline, matrix transformations for camera space, texture mapping, and lighting without external graphics libraries.
- Optimized rendering performance through manual memory management and efficient vertex processing algorithms and a custom linear algebra library.
- Wrote an OBJ file parser to load and render 3D models from file, implementing a custom material system, texture mapping, and multiple lighting models for realistic rendering.

Project Daedalus | C++, KiCad, Onshape, Arduino

October 2025 – Present

- Developed a custom C++ flight computer on Arduino Nano Every, integrating MPU6050, BMP388, and LoRa radio for 915Hz telemetry and black-box logging.
- Designed a custom PCB in KiCad and a 3D-printed avionics bay in Onshape to sustain high-G loads and protect electronics from the ejection charge, targeting a 5,500ft (1 mile+) apogee.

Leadership

AWS Cloud Club at UCSD | Founder & VP Technical

November 2025 – Present

- Established UCSD's official AWS affiliate organization, fostering a technical community focused on upskilling students in cloud computing, serverless architecture, and industry best practices.
- Curating and leading technical workshops on core AWS services (S3, Lambda, SageMaker), equipping 200+ members with the practical skills to build and deploy scalable cloud infrastructure.

Data Science Student Society (DS3) | Director of Software

October 2024 – Present

- Directing a team of 10+ engineers to build full-stack web applications for a 2,000+ member community, enforcing Agile workflows and CI/CD standards through Github Actions.
- Architected the backend for the centralized membership portal, implementing secure authentication flows and managing complex SQL database schemas on Supabase/Postgres.

Technical Skills

Languages: C++, C, Python, Java, SQL, React, Bash, Assembly, JavaScript, HTML/CSS

Embedded & Systems: Raspberry Pi, Arduino, I2C/SPI, Linux, SDL2, Make, GCC

Tools: AWS, Terraform, Docker, Git, CI/CD, Postgres, MongoDB, Jira, Confluence

Certifications: AWS Cloud Practitioner, AWS AI Practitioner, AWS Solutions Architect Associate

Hobbies: 3D Printing, Robotics, Guitar, Rubik's Cube (PB: 26.50s), Pool (Tracked every shot for 700+ games)