

ISSAC ROY

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

Experience

Neurocrine Biosciences | Software Engineer Intern (Data Infrastructure)

June 2025 – September 2025

- Architected a serverless, event-driven application on AWS (ECS, Lambda) to automate data ingestion, decoupling system components and reducing operational costs by \$200k annually.
- Engineered a production-grade backend pipeline using Python and AWS Bedrock and Redshift, integrating LLM APIs with patient data to generate study-specific narratives to streamline reporting and decision-making for study teams.
- 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 | Data Science Intern

October 2024 – January 2025

- Developed a robust web scraping service 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.

Relevant Coursework

- Advanced Data Structures
- Systems Programming
- Computer Organization
- Computer Vision
- Database Management
- Artificial Intelligence

Technical 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.

Project Daedalus (Avionics System) | C++, Raspberry Pi, OpenRocket

October 2025 – Present

- Engineering the avionics package for a G-class rocket, programming a Raspberry Pi in C++ to interface with IMU and GPS via I2C for telemetry. Designed a custom 3D-printed fairing to protect electronics under high-G launch loads.

YipYap Chat Application | React, TypeScript, MongoDB, WebSockets

August 2024

- Architected a full-stack real-time messaging app using Socket.IO for event-based communication and Express.js for RESTful API endpoints. Implemented JWT authentication and managed a MongoDB database for scalable storage.

Self-Playing Guitar | C++, Arduino, Mechatronics

December 2023

- Won 1st place at IEEE's Fall Competition against 30+ teams by engineering a self-playing guitar with custom laser-cut and 3D printed parts, programming a note transcriber in C++ to map musical notes to precise servo motions.

Leadership

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 1,000+ 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.

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.

Technical Skills

Embedded & Systems: Raspberry Pi, Arduino, I2C, Linux, SDL2

Cloud & DevOps: AWS, Terraform, Docker, Git, CI/CD, Postgres, MongoDB, Jira, Confluence

Languages: C++, C, Python, TypeScript, Java, SQL, React, Bash