

# 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

Relevant Coursework: Data Structures, Systems Programming, Database Management Systems, Web Development

## Experience

### MC Computer Vision Lab at UCSD | Research Assistant

January 2026 – Present

- Engineered the OpenRooms++ automation pipeline on NRP Kubernetes cluster, 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 event-driven microservice on AWS (ECS, Lambda) to automate data ingestion streams, optimizing system throughput and reducing annual OpEx by \$200k.
- Built a production-grade backend API using Python and AWS Bedrock, integrating Generative AI endpoints with a Redshift data warehouse to programmatically generate complex study narratives.
- Implemented Infrastructure as Code (IaC) using Terraform to deploy multi-environment CI/CD pipelines, reducing deployment latency and enforcing immutable infrastructure patterns.

### San Diego County Taxpayers Association | Technical Intern

October 2024 – January 2025

- Developed a distributed data ingestion pipeline using Playwright, implementing concurrency controls and proxy rotation to harvest data from dynamic web applications.
- Engineered a high-performance dashboard using React-based libraries, implementing client-side caching and callback optimization to render large-scale datasets with sub-second latency.

## Projects

### DS3 Internal Membership Portal | React, TypeScript, Supabase, Postgres

July 2025 – Present

- Architected a centralized membership and admin portals for a 1,000+ member organization, replacing legacy spreadsheet workflows with a secure, responsive web application.
- Implemented complex security policies using Row Level Security (RLS) and Role-Based Access Control (RBAC) in Postgres to secure sensitive user data.
- Designed a normalized database schema and wrote performant SQL queries to handle member tracking, event attendance, and analytics.

### Neural Nector | React, TypeScript, PyTorch, Python, FastAPI, Postgres

December 2025

- Developed a full-stack web application serving 100+ users, featuring a React frontend and a RESTful FastAPI backend deployed on cloud infrastructure to challenge users to distinguish between real and GAN-generated flower images.
- Optimized API performance for real-time model inference, managing asynchronous tasks and database transactions to track user game states and leaderboards.

### OnlyDance | React Three Fiber, TypeScript, Python, OpenCV, MediaPipe, FastAPI

April 2025

- Won 1st place at DataHacks 2025 (50+ teams) by building an interactive 3D web app that provides real-time motion feedback using browser-based computer vision with MediaPipe.
- Engineered a low-latency feedback loop, processing video frames in the browser and rendering 3D avatars at 60 FPS using React Three Fiber.

### YipYap, the Chat App for Yappers | React, TypeScript, MongoDB, WebSockets

August 2024

- Developed a real-time messaging application using Socket.IO for bi-directional event-based communication and Express.js for RESTful API endpoints. Implemented JWT authentication and designed a MongoDB chat and user data.

## Technical Skills

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

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

**Tools:** AWS, PostgreSQL, MongoDB, Docker, Terraform, Jira, Confluence, React, Node.js, Express.js, FastAPI, Selenium

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