Issac Roy

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Education

University of California San Diego — **June 2026**
Bachelor of Science in Data Science (4.0 GPA) — *San Diego, California*

Relevant Coursework

- Data Structures & Algorithms
- Optimization Methods for Data Science
- Data Science Applications
- Systems for Scalable Analytics
- Data Management
- Data Visualization
- Probability and Statistics
- Research Methods

Projects

YipYap, the Chat App for Yappers | *React, MongoDB, Express, SocketIO, Typescript, Figma* — **August 2024**

- Developed and deployed a full-stack chat app with MongoDB, Express.js, and React, supporting real-time communication using SocketIO.
- Designed UIs in Figma, implemented a RESTful backend architecture, and integrated Minstral AI model for yapping suggestions, enhancing user engagement.
- Gained extensive experience in API architecture, HTTP requests, database management, user authentication, UI design, and so much more, significantly expanding my technical skill set.

Wave Simulator | *Python, Numpy, Matplotlib* — **June 2024**

- Implemented 1D and 2D wave simulations using the Finite-Difference Method and used Vector Calculus concepts to implement 4 unique boundary conditions. Compiled and published research findings in a Medium article.

Digit Recognizer | *Python, PyTorch, Pandas, Numpy, Matplotlib* — **April 2024**

- Developed a handwritten Digit Recognizer with 87% accuracy using nothing but Numpy, later optimizing with PyTorch to achieve 93% accuracy and 10x faster training times.
- Created visualizations for training runs to fine-tune hyperparameters to maximize model performance.

Dino Classifier | *Python, PyTorch, Pandas, Numpy, Matplotlib* — **March 2024**

- Placed 3rd out of 30 teams in UCSD DataHacks with an app that matches dinosaurs to modern animals using a machine learning model made from scratch.
- Trained and tested a PyTorch model to predict dinosaur features like lifespan and top speed.

Experience

FIRST Robotics — **Fall 2020 - Summer 2023**
Software Lead — *San Diego, CA*

- Collaborated with a team of 4 to program, test, and iterate robotic arms for climbing Monkey Bars, integrating both manual and autonomous control systems.
- Implemented feedback systems such as PID to fine-tune robotic control, improving performance in competitive games.

Mathnasium — **July 2022 - June 2024**
Learning Instructor — *San Diego, CA*

- Instructed over 50 students of ages 5-18 using customized curriculums, resulting in over 90% of students seeing improvements in test scores.
- Taught new mathematical concepts while consistently assessing mastery of previous topics, with many students demonstrating improvement in their math skills and understanding.

Leadership / Extracurricular

SANDY Youth Group | *President* | *San Diego Malayalee Association (SANMA)* — **Summer 2024 - Present**

- Elected President of a 30-member youth group, organizing monthly activities and community volunteering efforts.
- Collaborating weekly with SANMA community leaders to plan and organize events.

FIRST Robotics | *Software Lead* | *Westview High School* — **Fall 2020 - Spring 2023**

- Led a team of 5 to program autonomous tasks for FIRST Robotics, improving efficiency by 1000% over the season.
- Completed over 100 hours of mentoring, contributing to the team's Regional Engineering Inspiration Award win.

Technical Skills

Languages: Python, Java, HTML/CSS, TypeScript, SQL, Arduino C, Go, C#, Lua
Developer Tools: VS Code, MongoDB, Postman, Figma, Eclipse, Roblox Studios
Technologies/Frameworks: Git, React, Express, SocketIO, NodeJS, PyTorch, Pandas, Numpy, JUnit, Linux