

Miguel Mascareno

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Education

University of California, Santa Cruz

Computer Science B.S.

Computer Engineering B.S.

with a Concentration on Networks

Completed: June 2025

Experience

AnyLog Federated Learning Platform

January 2025 - June 2025

- Lead a team of six students when we were mentored by AnyLog through a university program to develop a **Federated Learning Platform** leveraging Edgelake to allow **edge devices to locally train models** on **private local data** and share only the resulting model weights.
- Implemented **API containerization** options through **Docker** to allow for **simulating a network** on a single host, allowing us to **test the platform more efficiently** with the use of rapid deployment and teardown of network configurations
- Coordinated team efforts to utilize each members' qualities and allow each person to explore concepts they wanted to add to their toolbox
- Created Release Plans to synchronize our tasks and provide a clear foresight of the project goals that aligned with the Sponsors' expectations

Projects

RepIt | *Next.js, React, TypeScript, Tailwind, Shadcn, Clerk auth, Drizzle ORM + PostgreSQL (Neon)*

- Served as the "Project Owner" of a **development logging site** where users could note down their progress session by session.
- Leveraged the **Anthropic API** to allow users to **query information** about their progress without the need to format every input. Textbox data gets read by the **LLM** which **extracts meaning** and provides the user with a **colloquial explanation**
- Leveraged **Neon** for **database hosting**, **Clerk** for **authentication**, **Jest** for **testing**, and **Drizzle Object-Relational Mapper**

E-Commerce Website | *Docker, CI/CD, Git, API, Microservices*

- Built **full-stack** e-commerce platform with **microservices architecture** supporting 3 user roles (Admin, Shopper, Vendor) and handling product catalog, authentication, and order management
- Utilized **Git** for version control and **CI/CD pipelines** for automated testing and
- Containerized using **Docker** to allow for **rapid deployment of services and database** during development

Music Recommendation Model | *OpenAI, Embeddings, Model weights + parameters*

- Created a system that allowed us to assign weights to various categories of the data in order to **create embeddings** for each song. **Varying the weights** of each section allowed for the creation of **multiple embeddings** for each song which were then used to **test and monitor our progress**.
- Developed music recommendation engine using **OpenAI embeddings** with configurable **feature weights**, achieving similarity scores comparable to Spotify's algorithm across **10,000+** song dataset

Skills

Languages - C, C++, TypeScript, JavaScript, Python

Developer Tools - Git, Docker, AWS