Kaushal Marimuthu

kaushalmarimuthu.com • kaushal2m2@gmail.com • linkedin.com/in/kaushal-marimuthu • github.com/kaushal2m2

EDUCATION

The University of California at Davis: B.S. Computer Science and Engineering, GPA: 3.98/4.0 **Grad: Dec 2025**

Relevant Courses: Data Structures & Abstraction, Algorithm Design & Analysis, Machine Dependent Programming, Intro to Artificial Intelligence, Probability and Statistical Analysis for CS, Computer Architecture, Programming Languages, Machine Learning, Big Data Algorithms, GPU Computing

WORK EXPERIENCE

Incoming Solutions Engineer Intern | Deloitte *Starting June 2024*

Software Engineer Intern | Brain Racers *(startup)* | *React, PHP, REST APIs* *July 2023 – Sept 2023*

- Revamped structure of **MySQL** & Redis database framework containing 10000+ data points for 25% quicker access with 80% less queries for required user data with PHP Laravel.
- Created 3 REST API services with **10+** additional endpoints, enhancing real-time data retrieval by **50%**; documented APIs functionality to streamline frontend development by 3x.
- Worked with the design team to design and implement 5+ reusable new elements in **React** and CSS, and added them to the existing product, including a line graph showing user progress with the additional API endpoints.

Data Analyst Intern | DigitalMain *(startup) | Git, Data Analysis, Python* *June 2022 – Aug 2022*

- Wrote 10 robust **Python** scripts using Selenium Webdriver and BeautifulSoup to conduct in-depth analysis of 6 cybersecurity forums, leveraging 15,000+ scraped data points to identify 100+ keywords, trends, and FAQs to optimize data handling processes by 7x.
- Collaborated with DigitalMain's product manager to devise a comprehensive project blueprint, integrating **2 machine learning models** for efficient data organization.

STUDENT-RUN ORGANIZATIONS

Software Developer @ CodeLab (*UC Davis' Consulting Organization*) *Oct 2023 – Present*

- Consulted for the company **BillionMinds** (startup), and developed 3 versions of a company dashboard in **Next.js** and **TailwindCSS**, and worked continuously with designers and BillionMinds to advance it to a single product with **2 dashboards**, with **10+ interactive components** integrated with queried data from the MongoDB database.
- Reconstructed the data storing and handling structure by aggregating data from 4 different locations into a single **MongoDB** database using **AWS Lambda Serverless functions** and a **Kubernetes CronJob** and queried it from the frontend by building **5+ API endpoints** to populate the dashboard and charts, speeding up data loading processes by **200%**.

SWE Director | Davis Quant Collective | *Research, Machine Learning, Python* *July 2023 – Dec 2023*

- Analyzed and incorporated findings from **5+ research papers** into our ML Model Architecture for a stock portfolio manager and risk assessor project, streamlining project progress by 25%.
- Assembled the model in Python using an architecture of multiple **HuggingFace** models for initial processing and GPU-trained comprehensive **PyTorch** neural networks, and serving it using **Django** for easy queries from the frontend **Next.js** website with the user's positions and analytics.
- Led a team of 6 aspiring SWE's to develop a Python trading bot, using **scikit-learn** and **PyTorch** to create the ML model, and integrated and cross-tested with the stock portfolio manager, reaching a **5% average annual ROI** on historical and present day markets.

PROJECTS

Virtual Tour Guide | *Personal Project* | *Swift, React.js, OpenAI, HTML, CSS* *July 2023 – Nov 2023*

- Created an AI powered tour guide as a **React.js** website and as a **Swift** App using Google Maps API and **OpenAI** API's Davinci model to provide a product using real-time user location to offer a personalized tourist experience.
- Implemented text-to-speech in the Swift app to allow the user to enjoy their vacation experience with the tour guide in-ear with a backend implementation involving **Objective-C**.
- Integrated a **MongoDB** database for user accounts to have travel locations stored, using **Express** and **Node.js** to pull from the database, and MongoDB Swift Driver for the app.

TomatoClassify | *Personal Project* | *Tensorflow, PyTorch, Flask* *May 2023 – Sep 2023*

- Built a Sequential **Tensorflow Keras CNN** model to classify images of tomato plant leaves into 10 classes of diseases. The model is trained on 16000+ images and achieves **93% validation/test accuracy,** and is deployed with **Flask** with a React.js frontend.
- Reimplemented **Linear and Convolutional Neural Networks** from scratch and a basic **GPT** using **PyTorch** as a companion project, to understand the crux of how a machine learns, incorporating optimizations and architectures from **6+ research papers**.

SKILLS

Languages/Frameworks: Java, C++, C, Python, JavaScript, TypeScript, React, Next, MongoDB, Node, HTML, CSS, PHP, MySQL, Swift, Objective-C, Dart, Django, Flask

Tools/Technologies: PyTorch, Tensorflow, Keras, OpenAI, Tailwind CSS, Postman, Docker, VS Code, REST APIs, VisionOS, AWS, Algorithmic Programming, Data Analysis, ci/cd, Kubernetes