

# Brandon Wong

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## EDUCATION

### University of California, Davis

Computer Science, B.S. and Statistics, B.S. (Machine Learning Track)

Technology Management Minor

**Coursework:** Data Structures and Algorithms, Operating Systems, Computer Networks, Computer Vision, Deep Learning

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Expected Graduation June 2025

Davis, CA

3.70 GPA

## TECHNICAL SKILLS

**General:** PostgreSQL, MongoDB, Unit/Integration Testing, Authentication, Google Cloud, Docker, Multithreading, Git, Linux

**Languages:** C++, C, JavaScript, TypeScript, Swift, Python, Java, HTML, CSS, SQL, R

**Frameworks:** SwiftUI, Next.js, React.js, Node.js, React Native, PyTorch, Scikit-Learn, Prisma, Apollo GraphQL, Jest, Auth.js

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## EXPERIENCE

### Apple

June 2023 - Sept 2023

#### Software Engineering Intern

Cupertino, CA

- Engineered the Music Recognition module in **macOS** Control Center for the Shazam team using **SwiftUI**
- Independently started a **digital signal processing** research project and presented a product prototype to Shazam's director
- Improved location filtering in Shazam's Events app by prioritizing current location, impacting over 100 million monthly users
- Demonstrated initiative by pitching a sleep apnea detection **prototype** to 5 members of the Health team leadership

### HackDavis

Oct 2023 - Present

#### Technical Director

Davis, CA

- Built [2024.hackdavis.io](https://2024.hackdavis.io) and [judging.hackdavis.io](https://judging.hackdavis.io) for California's largest student-run hackathon (1200+ attendees)
- Taught SwiftUI, **Next.js**, Flask deployment, and full stack web and mobile development in 3 **technical workshops**
- Engineered fair matching and scoring **algorithms**, processing 1000+ team scores displayed on a custom dashboard
- Architected an authenticated REST API with **MongoDB** models to manage 50+ judges and 150+ teams
- Developed 10+ responsive UI components such as a custom swiping image carousel and an interactive prize list

### Include at Davis

Sept 2023 - Present

#### Technical Lead

Davis, CA

- Leading** a team of 20 engineers to develop an E-Store and Content Management System for professional clients
- Taught 5+ technical **workshops** on GraphQL, SQL/NoSQL databases, **Next.js**, and system design
- Architected template codebases integrating Apollo **GraphQL**, **Prisma**, and Next.js that are used in 20+ different projects
- Mentored 25+ engineers over 2 years on best practices for building and deploying Next.js apps on **serverless** infrastructure

### AggieWorks

Jan 2023 - June 2023

#### Software Engineer

Davis, CA

- Built and deployed a roommate matching app called [RoomU](#) for UC Davis students in **React Native**
  - Implemented image caching, database functions in **Supabase**, and 10+ reusable and reliable UI components
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## PROJECTS

### Shazam Social ([Github](#))

SwiftUI, Realm, and MongoDB

- Developed an iOS social media app with **Model View Viewmodel** architecture for users to share Shazamed songs
- Implemented user **authentication**, a custom map, an image **caching** system, and 5+ unique UI components

### Song Vocal Extraction ([Github](#))

PyTorch, Scikit-Learn, and Librosa

- Trained a deep convolutional **U-Net** to isolate song vocals using spectrograms, producing a research report
- Currently implementing a **transformer** based variant, and deploying the model to a website using **Flask**

### Operating Systems Projects

C++ and Shell Script

- Developed a **distributed** file system, a **multithreaded** web server, a user mode Unix shell, and several Unix utilities

### Deep Learning Projects ([Github](#))

PyTorch

- Implemented window attention in nanoGPT **LLM**, decreasing runtime by 14% and maintaining performance
- Finetuned a **vision transformer** model and improved student model loss by 10% using **knowledge distillation**

### Field Event Tracker ([Github](#))

SwiftUI and CoreData

- Created an **iOS** app to track and calculate results for field events at track meets, decreasing scoring time by 10x at 5 track meets