Brandon Wong

portfolio-brandonw504.vercel.app | linkedin.com/in/brandonw504 | github.com/brandonw504 | brandonw504@outlook.com

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EDUCATION

University of California, Davis — Sept 2021 - June 2025
Computer Science, B.S. and Statistics, B.S. (Machine Learning Track) — Davis, CA
Technology Management Minor — 3.72 GPA
Coursework: Data Structures and Algorithms, Operating Systems, Computer Networks, Parallel Programming, Deep Learning

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EXPERIENCE

Capital One — Aug 2025 - Present
Software Engineer — Plano, TX
- Rotation in Cloud Controls, Governance and Cost

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
- Addressed issues and built features in the Events app and macOS Control Center, benefiting over 100 million monthly users
- Demonstrated initiative by pitching a sleep apnea detection prototype to 5 members of the Health team leadership

Include at Davis — Sept 2023 - June 2025
Technical Lead — Davis, CA
- **Led a team** of 15 engineers to develop an E-Commerce Management System for other clubs and local businesses
- Translated complex user requirements into a modular, scalable system that can be easily **maintained long-term**
- Taught 5+ technical **workshops** on GraphQL, SQL/NoSQL databases, Next.js, frontend best practices, and system design
- Architected a template codebase integrating Apollo GraphQL, Prisma, and Next.js that is used in 15+ different projects

HackDavis — Oct 2023 - June 2025
Technical Director — Davis, CA
- Developed a scalable judging app (hub.hackdavis.io) successfully used at 2 hackathons with 2000+ total users
- Built 5+ modular UI components for landing pages (hackdavis.io and 2024.hackdavis.io), collaborating closely with designers
- Designed an **authentication system** with magic links for seamless, secure registration of 1000+ hackers and judges
- Engineered fair matching and scoring algorithms, processing 500+ team scores with **analytics** displayed on an admin dashboard
- Architected an authenticated REST API with MongoDB models to manage 1000+ users and 500+ scoring submissions

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TECHNICAL SKILLS

General: Signal Processing, Unit Testing, Authentication, Multithreading, Vercel, PostgreSQL, MongoDB, RAG, Git, Unix, Xcode
Languages: C++, C, Python, Golang, JavaScript, TypeScript, Swift, Java, HTML, CSS, SQL, R
Frameworks: SwiftUI, Next.js, React.js, Node.js, React Native, Prisma, Apollo, Jest, Auth.js, PyTorch, LangChain, OpenMP, CUDA

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 and wrote a research report

Parallel Programming Projects — C++, Golang, CUDA, and OpenMP
- Wrote a multithreaded DNS with a cache, and a parallel image processing pipeline using CUDA for a 25x speedup

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

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

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