

DAVID ZHU

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EDUCATION

University of California, Berkeley
B.A. Computer Science and B.S. Business Administration

GPA: 3.7
Aug. 2018 - Dec. 2022

PROFESSIONAL EXPERIENCE

Branch Metrics | Platform Engineer Intern May 2023 – Aug. 2023

- Designed an internal React-based application with MVVM pattern for managing feature flags across hundreds of microservices.
- Expanded REST APIs through Express + Axios, adding new metadata for user activity monitoring and updates.
- Implemented an automated testing suite for APIs and UI component rendering using Mocha, Chai, and React's testing library.
- Wrote YAML configuration files for Github Actions, automating the build, testing, and deployment pipeline across staging and production clusters within Kubernetes.

RheoSense | Software Engineer Intern – Full Stack May 2022 – Aug. 2022

- Automated XML and SQL queries for streamlining data transmission between AWS and Quickbooks databases.
- Designed and deployed a diagnostic tool that parses system logs into MySQL and offers insights into product health.
- Generated an internal graphical user interface tool for uploading files and images to AWS S3 buckets and internal dashboards.

Go Overseas | User Analytics Intern May 2020 – Aug. 2020

- Measured digital campaigns with Jupyter for a 1,000,000+ user website to research trends in consumer engagement.
- Utilized Google Analytics to research the impact of internal content marketing strategies on our search engine optimization.

PROJECTS

Playing By Ear | MongoDB, Express, React, Node.js, Next.js

- Engineered a full-stack MERN application, powered by Tailwind CSS and animated through Framer Motion, which allows account creation and personalized progress tracking through a music course on improvisational piano theory.

Rezoom | React, Bootstrap, Firebase

- Iterated and designed a platform that allows users to discover and query for on-campus clubs and opportunities.
- Authenticated users and managed data using Firebase.
- Conducted focus group interviews with prospective users to highlight potential user pain points and receive feedback.

AI Pacman | Python

- Developed a bot for Pac-man that maximizes its game score by utilizing an SAT solver to solve logical inference tasks associated with Pac-man's generated action sequences, simultaneous localization, and mapping.
- Programmed logic systems such as Markov Decision Processes, Bayes' Nets, state-space search, and minimax trees while incorporating machine learning with reinforcement learning to discover optimal Pac-man actions.

Database | Java

- Optimized the speed of file indexing on a dynamic multilayered database by implementing B+ Trees data structures with bulk-loading to support rapid data insertion and data access.
- Synchronized concurrent requests and transactions within the database through implementing locking APIs and protocols.
- Developed a query optimizer to estimate the most cost-effective data access methods and added different database join algorithms such as Sort Merge Join, PNLJ, BNLJ, and External Sort Join.

TECHNICAL SKILLS

- Languages:** Java, Python, Kotlin, C#, C, C++, Golang, SQL, Typescript, JavaScript, HTML, CSS
- Web Development:** React, Angular, Express.js, Node.js, Next.js, Tailwind.css, Framer Motion, Webpack
- Tools and Libraries:** Git, Docker, Kubernetes, AWS (S3, EC2), MongoDB, MySQL, Firebase, Gradle, Maven, CI/CD, Jira, Vim, Jupyter, Firebase, Pandas, Mocha, Chai, Jest

EXTRACURRICULARS

UC Berkeley College of Music: MUSIC 198 | Principal Instructor Aug. 2021 – Dec. 2022

- Designed and implemented an original curriculum for Playing By Ear, the most popular course at UC Berkeley for piano.
- Managed seven teaching assistants, launched three concerts, and led all student enrollment and marketing initiatives.

UC Berkeley College of Engineering: CS 198 | Teaching Assistant Jan. 2021 – May 2021

- Facilitated interactive discussion sections, imparting strategies for optimal and efficient utilization of data structures.
- Conducted weekly office hours for mocking coding interviews and aiding students in recognizing key algorithmic patterns.