Josh Hall

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EDUCATION

California Polytechnic State University (Cal Poly), San Luis Obispo, CA   Sept 2022 - Jun 2026
Bachelor of Science, **Software Engineering**
GPA 3.7, Dean's List
Relevant Coursework: Data Structures & Discrete Structures, Object-Oriented Programming & Design, Introduction to Computer Organization, Software Engineering 1 & 2, Systems Programming, Design and Analysis of Algorithms, Programming Languages, Databases/SQL, Interactive Entertainment Engineering/Game Design, Mobile Application Development, Web Application Development, Artificial Intelligence

SKILLS

- Java, Python, Kotlin, C, C#, Typescript, JavaScript, React, Express, Node.js, MongoDB, SQL, JSON, REST, HTML, Assembly Language, SAS, PostgreSQL, Alembic, CSS, FastAPI, AI
- Unity, Godot, Unreal Engine 5, Android Studio, Git, AWS, Azure, Slack, Discord, TinkerCad, 3D Printing, Google Suite, PowerPoint, Word, Excel, Outlook, Xcode, Supabase, Render

SOFTWARE ENGINEERING EXPERIENCE

Augmented Reality Aided Vehicle Operation: SURP (Summer Undergraduate Research Program)   June 2025 - Sept 2025
- Connected a Bluetooth OBD-II meter to a phone and transmitted live vehicle telemetry data to a custom Unity application.
- Developed an AR prototype in C# on Microsoft HoloLens 2 in Unity to display real-time information in the user's field of view.

SQL Database Potion Project   March 2025 - June 2025
- Built and deployed a production-ready FastAPI Python backend integrated with PostgreSQL (via Supabase) and hosted on Render, implementing database migrations with Alembic and enforcing data integrity with SQL constraints.
- Designed and normalized relational schemas to support dynamic inventory management, custom potion recipes, and order/cart systems with proper foreign key relationships.
- Implemented advanced backend patterns, including event-sourced ledgerization and idempotent API endpoints to ensure fault tolerance, consistency, and accurate financial tracking.
- Developed analytics and search functionality by adding instrumentation, writing SQL queries for data-driven strategies, and creating efficient search/filter/pagination endpoints for order management.

Spotify Playlist Manager   March 2025 - June 2025
- Developed a single-page application (SPA) using TypeScript, Vite, and Lit, implementing client-side routing to deliver dynamic views without full page reloads.
- Integrated RESTful APIs with Spotify data (categories, playlists, and tracks) and designed a global state management system using MVU architecture to ensure consistency across views.
- Implemented authentication and protected routes with MVU, managing OAuth tokens securely, and enabling personalized, user-specific playlist features.
- Built reusable, type-safe components and views (e.g., playlist browsing, creation, and editing) leveraging LitElement and Mustang's typed messaging system for scalable, maintainable front-end development.

Mobile Application in Android Studio   January 2025 - March 2025
- Developed an Android app in Kotlin that allows users to compile a list of restaurants and dishes in an easy-to-read and use UI.
- Implemented local data persistence using Room Database and background threading with Kotlin coroutines.
- Integrated Android Photo Picker and Camera functionality to support image attachments from device storage and live capture.
- Designed dynamic UI with RecyclerViews, nested adapters, and image preview overlays, enhancing user experience.

2D Puzzle Platformer Unity Game   January 2025 - March 2025
- Used the Unity game engine in a group of 5 to create a 2D puzzle platformer (https://agwe422.itch.io/lumen)
- Used a tilemap to create unique level designs and created a unique light/dark mechanic through the code
- Coded in C# to create an intuitive platforming movement system and an activated sandbag falling effect.

Inventory Management Web Application   Sept 2023 - June 2024
- Developed an inventory management web application with a team of 5 engineering students.
- Managed the backend code and connected code to a Mongoose database (MongoDB) to store and extract data.
- Utilized cloud technologies like AWS for image storage and Azure for deployment.
- Programmed in TypeScript using React, Node.js, and Express framework.

LEADERSHIP AND INVOLVEMENT

- Leadership in Christian Fellowship, Cal Poly, May 2025 - Present
- Historian for Nikkei Student Union, Cal Poly, Sept 2023 - June 2025
- Member of Ultimate Frisbee Team, Cal Poly, Sept 2022 - Present