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EDUCATION

The University of Utah   **Expected May 2026**
Software Development / EAE B.S - MJ-SFDV (GPA: 3.50/4.0)
Relevant Coursework: Intro to Algs & DS, Discrete Structures, Models of Computation, Computer Org, Design Human Center Sys, Software Practice, Web software development, Mobile App Programming,Computer Security, Data Wrangling, Database Systems

WORK EXPERIENCE

Junxin Technology Co. , Dongguan, CN
Server and operation management   **Aug 2019 – Apr 2020**

- Compile a Linux system shell script to enable the server to automatically run programs, automatically report errors to the terminal server, and allow for self-restarting via the terminal server.
- Developed a user-friendly server monitoring web app to help beginner users easily understand and monitor their server status.

Life Stages LLC Company
Software engineer   **Aug 2024 – Oct 2024**

- Developed a wellness-focused iOS mobile application using **Swift**, implementing **MVVM** architecture with Combine framework for reactive programming and state management, following **Agile** development practices.
- Integrated **Firebase** ecosystem (Authentication, Cloud Firestore, Storage) to implement secure multi-provider authentication (Email, Google OAuth, Apple Sign-In using CryptoKit) and real-time data synchronization across devices.
- Designed and built custom reusable UI components and ViewModifiers using **SwiftUI**, creating smooth animations and transitions with matchedGeometryEffect and NavigationStack for modern iOS navigation patterns.
- Developed a high-performance image caching system using **NSCache** and Combine, optimizing network image loading and memory management for improved app performance.
- Implemented user **onboarding flows**, profile management features, and personalized content recommendation system with real-time data updates using **Firestore snapshot listeners**.
- Implemented AI-powered mood detection features that can capture user expressions and analyze them using an AI agent to personalize user experiences with OPENAI API.

ACADEMIC PROJECT

EnDrawin Android App (Kotlin, Jetpack Compose, Room, MVVM, Android Testing, JNI, C++)

- Architected and developed an interactive Android drawing application using **MVVM architecture** with **Repository** pattern, featuring a **custom View-based** drawing canvas with touch event handling, dynamic brush customization (color, shape, size), eraser functionality, and undo/redo support.
- Engineered data persistence using **Room** database with TypeConverters, implementing reactive data streams with **Flow/StateFlow** for real-time UI updates, enabling users to save, load, and manage drawings with timestamp-based gallery organization.
- Built a dynamic gallery screen using **Jetpack Compose**, implementing **LazyColumn** for efficient rendering, **ComposeView** integration in **Fragment-based** navigation, and dynamic UI state management with confirmation dialogs and public/private image sharing toggle.
- Developed native image processing using **JNI (C++)** with **CMake**, implementing bitmap manipulation functions (color inversion, noise generation) for enhanced performance.
- Implemented comprehensive testing suite using **Espresso** and **Jetpack Compose Test APIs**, covering UI interactions, data persistence, screen rotation handling, ViewModel unit tests, DAO integration tests, and end-to-end user flows.

Pony Express Messaging App (React, React Query, FastAPI, TailwindCSS, Potry)

- Built a full-stack chat-based messaging application with user authentication, chat room management, and message interactions using **RESTful API** architecture.
- Utilized React Query for efficient data fetching, caching, and state synchronization, combined with **React hooks** for component state management and **TailwindCSS** for responsive UI design.
- Using the **Poetry** dependency management tool enables users to configure virtual environments with a single command, ensuring complete isolation from the system.
- Implemented **JWT-based cookie authentication** with bcrypt password hashing, secure session management, and protected routes using **React Router** and **Context API**.
- Designed **RESTful** API with **FastAPI, SQLModel ORM**, and **SQLite** database, implementing **CRUD** operations for chats, messages, and user accounts with comprehensive error handling.

Hanzi Party Educational Project (Educational Game) (Qt Creator, Box2D, C++)

- Built a C++ educational application with interactive character behaviors for language learning using **Qt Creator**.
- Utilized **BOX2D** as an animation physics engine to model character actions using impulse-based motion (jumping) and joint-based constraints (swinging) to achieve physically plausible animations.
- Synchronized physics world updates with UI rendering, ensuring consistent mapping between Box2D coordinates and **Qt widgets**.

Agario Game Project (C#, MAUI, Client-Server Architecture)

- Generated an online game based on **C#**, developed the Client and Server for the real time game's interactions.
- Developed the GUI using **MAUI**, and Logger to record the running status of the game and for easier game maintenance.
- Compiled and reproduced the algorithms for ball movement, separation, and size adjustment based on "eating" enemies in Agar.io.
- Built simple AI movement behavior for "enemies" was programmed and encapsulated in **JSON** for transmission to the server for execution.

TECHNICAL SKILLS

Technology: Microsoft Suite, Visual Studio, VS code, Eclipse, Xcode, Qt Creator, Django, PhotoShop, Maya, ZBrush, UE5, Blender, AWS, Android Studio, PyCharm, MAUI, Git, Tailwind CSS, React, BOX2D
Programming Skills: Python, Java, C#, C++, Kotlin, JavaScript, Swift, CSS, HTML, SQL, JSON
Other: MVVM Pattern, AJAX, Database Management, UI/UX Design