Alex Liu

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EDUCATION

Purdue University   West Lafayette, IN
MS in Computer Science | GPA: 4.0   Expected May 2025
BS Double Major in Computer Science and Data Science | Machine Intelligence Track   May 2024
- GPA: 3.94, Dean's List all 8 semesters, Semester Honors all 8 semesters

Relevant Coursework: Object Oriented Programming, Data Structures and Algorithms, Computer Architecture, Parallel Computing, Systems Programming, Intro to AI, Data Mining and Machine Learning, Large-Scale Data Analytics
Languages: C, C++, Java, Javascript, SQL, Swift, Python, R

WORK EXPERIENCE

Qualcomm   San Diego, CA
Software Engineer Intern   May 2024 - Current
- Expanded current camera simulator from 2D plane raytracing to 3D objects raytracing kernels in OpenCL
- Camera simulator aids by producing photorealistic training data for computer vision models along with robotics
- Expanded on current raytracing implementation to apply for different 3D object representation such as spherical point clouds along with state of the art 3D Gaussian Splatting techniques
- Implementing Bounded Volume Hierarchy data structure to optimize 3D Gaussian raytracing speed

Northrop Grumman | Mission Systems Division   San Diego, CA
Software Engineer Intern   May 2022 - August 2022
- Optimized Create, Read, Update, and Delete (CRUD) operations using Stored Procedures, Triggers, and User Defined Functions for database MySQL to allow more efficient data access and analysis.
- Updated customer database by scripting automated migration of Microsoft SQL Server database from SQL Server 2017 to SQL Sever 2022 for updated syntax.
- Developed and integrated additional features for a web-based armed forcers training app with JavaScript and Angular to allow for customizable management over customer access to private content

Purdue Department of Computer Science   West Lafayette, IN
Teaching Assistant, Discrete Math (2021-2022) & Analysis of Algorithms (2022-2023)   May 2021 - Current
- Held 3 hours worth of weekly help sessions and additional review sessions during final week.
- Taught 30 min supplemental lab lectures weekly for 40+ students
- Graded 300+ assignments and exams with feedback and additional resources

Course Developer   May 2021 - December 2021
- Designed assignments for a core computer science course. (CS180 Object Oriented Java Programing)
- Wrote JUnit test cases for each assignment. Automated grading of 400+ student assignments.

PERSONAL PROJECTS

Github: https://github.com/liuhoo
EchoMind | *C++/SwiftUI*   August 2023 - December 2023
- Speech to Text, Text to Speech MVVM iOS application that allows vocal communication with ChatGPT
- End to end encryption between application client and server using transport layer security sockets.
- Guaranteed communications between the client and server to uphold integrity, authentication, and confidentiality through the use of certificates.

CompactCaddie | *SwiftUI/CoreData*   May 2023 - June 2023
- Developed a full stack application to track golf statistics during rounds and provide better performance analysis following the MVVM software design pattern. https://apps.apple.com/us/app/compactcaddie/id6450189129
- Application used by current NCAA D-1 and professional golfers to collect data and improve their golf game.

Crvnchtime | *Python*   May 2021 - August 2021
- Developed an application to determine and remove insignificant/quiet portions of online lecture videos.
- Reduced 15-25% of lecture length by utilizing Python libraries including ffmpeg and tkinter to provide a smooth and efficient learning experience.