

Summary

Senior software engineer specializing in graphics, XR, and game development with over 10 years of expertise creating augmented and virtual reality applications. I am skilled in both OOP and ECS design patterns and have extensive experience with rapid prototyping.

Experience

Store No. 8 - Walmart

Senior Software Engineer
July 2021 - April 2024

Lead Engineer of an in-aisle filtering prototype for retail shoppers - *Magic Leap 2, Unity, C#*

- Created a system to save, load, and adjust product locations across aisles inside any Walmarts
- Performed UATs in a Walmart Supercenter with over 50 external participants
- Project was showcased at Walmart's CES 2024 exhibit

Consumer in-store retail AR shopping application - *HoloLens 2, Magic Leap 2, Unity, C#*

- Led development on major features: shopping list, shopping cart, and 3D character integrations
- Demoed iterative prototypes to Walmart Inc. CEO, Walmart US CEO, and senior Walmart leadership

AR prototyping framework - *HoloLens 2, Unity, C#, Python*

- Created services allowing for the asynchronous loading and unloading of any asset type at runtime
- Made tools to help integrate large scale Digital Twins for Walmart Supercenters

Enterprise AR application for the Apple Vision Pro - *Apple Vision Pro, Swift, RealityKit, Firebase, Python*

- Collaborated with design lead to implement fundamental navigational UI
- Project was demoed to senior leadership at Walmart and Apple including Apple CEO Tim Cook

Amazon

Software Engineer
July 2020 - June 2021

- Worked directly with vendors to resolve issues with the Title Team's services
- Programmed scripts to automate workflows that modified production databases
- Helped the company combat manipulative listings by modifying the scoring algorithm

NASA

AR/VR Intern
Summer 2017 & 2019

- Developed a program that converts reflectance data from NASA's Lunar Reconnaissance Orbiter into Unity Terrain Meshes allowing users to navigate the surface of the moon
- Designed modular software that allows users to 3D model while inside any VR application
- Presented organization projects to multiple teams across several NASA campuses

Projects

3D Cellular Automata

Vulkan, C++, Metal, Swift, OpenXR

- Created a Vulkan & C++ engine to simulate cellular automata of any 3D space filling polyhedra
- Utilizes headless computing, dynamic rendering, indirect drawing, and h264 video encoding
- Implemented the engine for the Apple Vision Pro and created OpenXR implementation

3D Minesweeper

Unity, C#, ECS, Python

- A modern implementation of a classic game but in three dimensions for iOS, Android, and XR devices
- Devised formulas to compute the position, rotation, and neighbors for 20+ 3D space-filling polyhedra
- Core game logic written using Unity's DOTS architecture heavily utilizing multi-threaded jobs

Marching Shapes

Python, Blender

- Wrote an algorithm that finds all permutations of polygonal meshes of isosurfaces that are formed from three-dimensional space filling convex polyhedra

Education

Oakland University

2017 - 2019, Oakland, MI

BS Computer Science with a minor in Japanese

University Hackathon Organizer - GrizzHacks 2017-2019

Skills

Languages

C#, C++, Python, JavaScript, GLSL, Swift

Software

Unity, Blender, RenderDoc
Git, Figma, Postman

Libraries/Services

Vulkan, Metal, OpenXR,
Firebase, Three.js, FFmpeg

Hardware

Apple Vision Pro, Meta Quest 3,
Magic Leap 2, HoloLens 2,
Valve Index

Hackathons Awards

Riot Games Hackathon 2018: *Honorable Mention*

Junction Tokyo: *Softbank's and IBM's Challenges*

Hack The North 2017: *Google's Challenge*

Hack The North 2016: *Top 12, Firebase's Challenge*

MHacks 11: *2nd Place*

SpartaHack IV & V: *2nd Place*

HackCWRU 2018: *2nd Place*

SpartaHack: *3rd Place, Most Creative*