James **Carroll**

SOFTWARE ENGINEER

Nashville, TN

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Summary

Focused and detail-oriented Software Engineer offering exceptional troubleshooting skills and a talent for developing innovative solutions to unusual and difficult problems.

Education

University of Central Florida   *Orlando, Fl*

B.S. IN COMPUTER SCIENCE   *2017*

Work Experience

Sijome

LEAD SOFTWARE ENGINEER   *May. 2020 - Current*

- Lead software engineer for a rewards mobile app, directly responsible for the architecture of the platform and managed software development direction.
- Led development of an Android and iOS mobile app using C# and Xamarin which utilized modern development practices like MVVM and Dependency Injection.
- Led development of a backend built on top of C#, ASP.NET Core, and Orleans for highly scalable systems.
- Engineered a provisioned blockchain to keep track of Sijome Points on a distributed ledger in a multi-cluster Orleans environment; further utilized Orleans as an efficient distributed cache of the chain for faster higher level operations.
- Engineered a library which allowed for querying an Orleans Grain's state without loading the Grains into memory; this was developed to assist with gathering data from actors for analytics purposes.
- Implemented a custom MSBuild Task / Pipeline to auto generate C# code from Protobuf schema definitions. This let us use the Protobuf wire format, which is more efficient than JSON, to communicate between the Xamarin mobile app, ASP.NET Core Rest API, and Orleans Clusters.
- Led development of a consumer facing website, a business portal website, and an admin panel site built on top server side Blazor.
- Developed Devops CI pipelines to test and deploy the mobile apps to Apple Appstore and Google Play Store, the ASP.NET Core and Orleans backends to Azure, and internal libraries to a private NuGet feed.

Bencin Studios

SOFTWARE ENGINEER   *Mar. 2019 - May. 2020*

- Implemented and architected a highly scalable backend for an asynchronous mobile multiplayer game. Utilized ASP.NET Core and Orleans to achieve horizontal scaling.
- Developed an ASP.NET backend to manage user accounts and large binary assets for a HoloLens enterprise mixed reality training app.
- Assisted in rewriting company website & blog so that it could be dynamically managed with an admin panel. Front end used React + Redux, backend used ASP.NET Core.
- Implemented multiple HoloLens apps which could livestream the HoloLens' camera feed to one or more outside viewers while allowing the viewers to draw on the HoloLens' physical world. Directly responsible for large portions of networking, video compression, and drawing components.
- Developed a mocap tool to allow us to record Unity animations using Microsoft's Azure Kinect.
- Implemented an End to End Encryption library to secure sensitive real time audio and video communications. Library was efficient enough to run in real time on HoloLens with little overhead.
- Implemented a proof of concept, computer vision based, spatial anchoring system for HoloLens and Magic Leap so that virtual objects would appear in the same physical spot in real time across platforms.
- Developed & managed multiple devops pipelines on Github for multiple projects. Developed custom devops tools to help solve Unity specific problems when working in a team.

Echo Interactive

XR ENGINEER   *Oct. 2018 - Jan. 2019*

- Contracted to build a cross platform AR demo using Unity supporting android, iOS, and Magic Leap devices.
- Built a cross platform SDK so that high level code could interact with a single device independent API.
- Built an image-based spatial anchoring system so that virtual objects would appear in the same physical location across platforms.

Virtual Chill Studios

XR Engineer *Oct. 2017 - Oct. 2018*

- Built a modular SDK that could be used to interact with mixed reality devices like SteamVR, Oculus, and Windows MR.
- Created a multi thread library so we could batch AI behaviors, physics calculation, procedural mesh generation, and more across multiple concurrent background threads.
- Built a custom physics system to handle physics with a spline-based procedurally generated race track.The track collider would precompute possible positions and rotations so we could efficiently take hundreds of samples per second at runtime for smooth interpolation in VR. The collider's precomputing happens on a background thread while the user is building the track. The custom engine also rotates gravity to the track's local rotation at that point.