Jonathan Nieman

XR Developer - Unreal Engine and Unity

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EXPERIENCE

Avrio Analytics, Remote— *AR Engineer*

August 2021 - Present

Refined Avrio's Table Top Experience (TTX) AR product into a reusable system that can be easily customized to the client's requirements. Utilizing the Unity Package Manager, future developers can import samples, template scenes and scripts into a new TTX project from a Git repository. These improvements to the company's toolkits have reduced TTX development time significantly.

Added cross platform capability to Avrio's TTX product to support desktop and mobile platforms. Redesigned all UI and interaction elements to support screen space devices.

Created and maintained numerous toolkits for various feature sets, such as multiplayer game modes and connection logic, UI elements and spatial alignment libraries for co-located AR experiences.

Coached other developers and team members on best practices for creating multiplayer experiences targeting the Magic Leap One while maintaining cross platform capability.

Moved existing projects and assets to utilize the Unity Addressable Asset System and Amazon S3 buckets. This allowed for future downloadable content to be added without the need for a full build of the app to be distributed. Avrio clients depend on updated assets to correctly simulate various real life scenarios as training material for first responders of all types.

Avrio's AR clients included federal government agencies, police and fire departments, and numerous other data science clients.

VRCenter, Asheville — *Lead Unreal Engine Developer*

November 2019 - June 2021

Worked with and organized a small development team to deliver custom training solutions built using Unreal Engine to customers in the financial and medical fields.

Targeting Quest 2 with Unreal Engine 4, innovatively created interaction methods for syringes, tweezers, scalpels and vials to intuitively simulate the surgical preparation of skin tissue samples for burn victims. Cloth physics and render targets were used to simulate the removal of the epidermis from a skin tissue sample.

Implemented a metrics system to measure user performance during crucial steps in a simulated surgical process, which was later submitted to the client's Salesforce database. Users' responses to multiple choice questions presented on 3D widgets were also recorded.

This app is now used by the leader in regenerative medicine, to effectively train surgical technicians to prepare skin samples using their proprietary enzymatic process.

Spearheaded development on a Unreal Engine 4 cross-platform shop simulator for Oculus Quest and SteamVR which leveraged web services such as Amazon Gamelift, DynamoDB and ViVox to implement matchmaking, server scaling and cross platform 3D positional voice chat. An API was created with GraphQL to update and retrieve player usernames, high scores and avatar customization data from a DynamoDB database. *GalaxyDonutz* is still under development presently, with shop customization slated as the next big feature on the roadmap.

Developed an Augmented Reality demo for the Air Force at Mountain Home AFB that simulated RFID tracker data, which was visualized in 3D space using a Magic Leap

SKILLS

5+ years experience developing XR apps using Unreal Engine 4 and Unity

C++, C#, Java, Blueprints

SQL, Javascript, Python

AWS, Gamelift, DynamoDB, GraphQL, REST, JSON

HTML, CSS, PHP, SASS

Linux, Android

Android Debugging

Quest 2 Performance Analysis

Magic Leap One Performance Analysis

Object Oriented Design

Strong VCS skills with Git and Perforce

Microsoft Office

Photoshop, Blender

Autodesk CAD software

FDM printing prototype designs

Vive, Vive Pro, Pico Neo, Magic Leap One, Hololens 2, Quest 1 &2, Valve Index

UI and Sound design

Embedded electronics

DMX and LED lighting control

EDUCATION

High School Diploma -2015
North Buncombe High School

headset. The data was overlaid onto a 3D representation of Mountain Home AFB. A tablet was also used to view the Magic Leap user and the simulated RFID tracker data over a Local Area Network. The company we were representing received a direct to Phase 2 SBIR award from the Air Force in the millions of dollars.

Delivered a 360 video based training application for one of the largest financial investment groups in the nation. This application is still used to help employees identify fraudulent transactions.

Better Than Unicorns, Asheville — *Unreal Developer*

Jan 2018 - November 2019

Delivered 3D visualizations for architecture clients to use as promotional material for their circular home designs.

Developed experimental experiences that placed multiple users into the same virtual and physical environment for added immersion. One such experience was a take on table tennis but with a zero G ball.

Worked on a Sci-Fi themed escape room experience for the HTC Vive.

Self Employed, Asheville — *Web Developer*

Jan 2016 - November 2019

Maintained and created Wordpress websites for multiple local businesses, ranging from meal prep delivery services, click funnels for dating coaches, to Spanish tutoring.

Wrote a custom website based off the Material Design Lite library that was used to advertise my mobile auto detailing service that served Asheville and the surrounding area.

Personal Projects

Jan 2015 - November 2019

Developed multiple game concepts in Unreal Engine 4, one of which was a kart racing game for the HTC Vive, physics based puzzle escape room, and destructible fort building experience for VR, featuring large cannons.

Using a Raspberry Pi and a HUB-75 LED matrix, I wrote OpenGL shaders to create different patterns/effects that were rendered onto the LED matrix.

Outfitted various wearable accessories with addressable LED strips, connected to a microcontroller and LiPo battery. Programmed lighting effects for various events.

Recreated the classic snake game as an Android app utilizing the LibGDX game development framework as a High School Senior Graduation project.