NICHOLAS ABEL

(425) 241-2544 nick.a.abel@gmail.com Cle Elum, WA 98922

Nick is a software engineer of 7+ years who specializes in making Unity do everything it wasn't designed to do. He has deep experience in Virtual Reality interaction systems and VR training platforms. He is the co-developer of NewtonVR, an open-source, physics based interaction framework built in Unity.

Unity • Virtual Reality • C# (.NET, Blazor (Server)) • JavaScript (d3.js) • HTML 5, CSS • Oculus VR, OpenVR

TrainingLab.ai

09/2023 - Current

Consulting Developer

> Design and technical assistance on a VR soft-skill training simulation using AI to deliver natural, dynamic conversations and assess player responses.
>
> **Unity / Virtual Reality / InWorld (AI middleware)**
>
> - Architected core gameplay systems for goal and task progression tracking.
> - Integrated AI middleware and conversational system

Medtronic

12/2022 - 05/2023

Senior Software Developer (contract)

> Developed Unity based VR training modules, including Mazor Spinal Surgical System. Built out internal customer demos and tutorials, and advised on VR training design and methodology.
>
> **Unity / Virtual Reality / Photon (networking)**
>
> - Co-architected VR interaction platform refactor. Libraries reduced from 11 to 3.
> - Integrated platform network code with Photon, built spawn management system.
> - Scripted a voice-over generation system, based on Python & Google Cloud Text-to-Speech.

Virtualitics

06/2021 - 08/2022

Software Engineer

> Ported a Unity desktop data visualization and analysis tool to a server-side web application.
>
> **C# / .NET / Blazor (Server) / JavaScript / d3.js / HTML / CSS**
>
> - One-to-one visual re-build of Unity UI in web markup, re-created all 2d chart generations in d3.js
> - Refactoring Unity dependent libraries to allow compilation use outside of Unity binary.

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Osso VR *12/2016 – 06/2021*

Virtual Reality Software Engineer

2nd engineer at Osso VR. Turned a prototype VR orthopedic surgical simulator (Unity, C#) into a product trusted by Medtronic, J&J Medical, and Zimmer for training and sale, and saw funding from seed to 27M (series B).

C# / .NET / Virtual Reality

- Built out core interaction system, modularized procedures, specific interactions, OVR abstraction layer. Created a simulated generic C-arm.
- Developed VR interaction systems and voice control for the procedures and tied the procedure together in Unity.
- Built tools for artists within Unity, and updated legacy interaction logic to support multiplayer.

Unity, Seattle, WA *10/2016 – 12/2016*

Unity Developer (contract)

- **VR Foundations ToolKit** - Helped develop the Unity VR Foundations Toolkit (now XR Foundations TK), a collection of Unity scripts to facilitate the implementation of motion controller interactions in VR. Wrote OVR and OpenVR abstractions.
- **EVRTH** - Implemented globe grab interaction on a simulated planet Earth.

Tomorrow Today Labs, Seattle, WA *8/2015 – 10/2016*

Virtual Reality Developer

Developed Unity based virtual reality games for the HTC Vive/SteamVR, and created physics-based interaction frameworks for motion controller based VR.

- **NewtonVR -** Co-created a physics-based interaction system built in Unity3D for SteamVR/HTC Vive. Implemented non-kinematic interactions through Unity's physics (PhysX).

Related Published Works:

Abel, Nicholas (2015). *NewtonVR: Physics-based interaction on the Vive (Part 1). VRInflux.com*

Microsoft (CompuCom Contractor), Redmond, WA *05/2010 - 09/2010*

Test Associate 1

Using a variety of internal tools, ran test cases, filed bug reports, and conducted quality assurance on the game titles initially released with the Kinect hardware for the Microsoft Xbox 360 game console.

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Projects

- **WallPlacer (HoloLens) - Microsoft Holographic Hackathon 2016**

Education

University of Washington – Bothell *2013 – 2015*

B.S. Computer Science & Software Engineering

- Bioinformatics Research - Dr. Wooyoung Kim

Bellevue College *2010 – 2012*

A.S. Track II (Physics, Atmospheric Sciences, and Engineering)

References upon request.