Amelia Mesdag

Senior Software Developer · Senior Unity Developer

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Seasoned software developer with 14+ years of experience building interactive, real-time 3D applications across defence, government, architecture, and interactive media sectors. Blends deep Unity and C# expertise with a strong command of performance optimization, UI/UX architecture, and immersive system design. Proven record delivering production-grade solutions for desktop, mobile, and spatial computing environments (XR/VR/AR), collaborating in multidisciplinary teams to bring complex digital experiences to life.

CORE COMPETENCIES: Unity 3D | C# | C++ | XR/VR/AR Development | Real-Time 3D Systems | Performance Optimization | UI/UX Architecture Cross-Platform Deployment | 3D Visualization | Digital Twins | Simulation Systems Shaders & Rendering | Agile Development | Team Collaboration | Client-Facing Delivery

Professional Experience

Capgemini Canada – Experience Engineering
Halifax, NS

Senior Software Developer
May 2024 – Jul 2025

Delivered real-time 3D solutions, including digital twins, simulations, and virtual showrooms for clients in the AECO (Architecture, Engineering, Construction, Operations) sector.
- Collaborated with a multidisciplinary team to build a large-scale VR showroom application enabling interactive client presentations for major U.S. industrial investment projects.
- Engineered core application modules in Unity, including UI architecture, feature implementation, and performance profiling to enhance runtime efficiency and user experience.
- Optimized application performance using profiling tools to identify bottlenecks and implemented new solutions using Unity's job system and Burst compiler, reducing frame times from over 16ms to under 11ms per frame, exceeding the 90FPS target on Apple Vision Pro.
- Delivered immersive 3D functionality such as real-time media playback, virtual environment tours, and geospatial data visualization to support high-fidelity client demonstrations.

Unity Technologies – Industry & Accelerate Solutions
Halifax, NS

Senior Software Developer
Nov 2022 – Apr 2024

Contributed to multiple client engagements within AECO, creating interactive and enterprise-grade 3D visualization tools.
- Led end-to-end delivery on one client project and supporting three additional projects.
- Built UI systems, functional features, and conducted profiling to enhance runtime performance.
- Developed custom offline 3D geographical models using USGS and NASA data, eliminating the need for costly GIS licenses and preserving the entire project budget.
- Optimized cross-platform compatibility by developing a custom XR solution for Microsoft HoloLens, reducing maintenance efforts by 50% through leveraging existing user interface code for multiple platforms.

Project X-Ray
Feb 2023 - Apr 2024

White-box BIM visualization tool overlaying digital architectural models onto physical spaces using Unity Cloud.
- Designed and implemented the user interface for Microsoft HoloLens; optimized performance across HoloLens, iOS, and Android.
- Contributed to core feature implementation and release architecture.
- Repository: Unity Cloud Reference Project

Government of Canada - Department of National Defence
Halifax, NS

Lead Developer
Jun 2021 – Nov 2022

- Managed software development across multiple Royal Canadian Navy training simulation projects for the Naval Training and Development Centre (NTDC(A) LSC).

- Led cross-functional teams of developers and technical artists to deliver the RCN Virtual Fleet—a next-generation simulation platform advancing digital naval training and operational readiness.

RCN Virtual Fleet   Jun 2020 – Nov 2022
- Rebuilt the RCN Virtual Fleet training simulation from Unity 5.6 to Unity 2022, modernizing performance, rendering, and compatibility for next-generation platforms.
- Upgraded DND's DLN 2.0 and SCORM framework to DLN 3.0 with integrated xAPI support, enhancing tracking, analytics, and interoperability across learning systems.
- Implemented DIS 6.0 networking standards to enable cross-simulation communication and joint training exercises.
- Directed collaboration with external 3D and technical art teams to produce digital twin models of the AOPS, Halifax, Victoria, Kingston, and ORCA ship classes, deployed on Windows and WebGL environments.

Fleet Sim Training Solutions   Halifax, NS
Senior Software Developer   May 2020 – Jun 2021
- Provided technical direction and contributed to early-stage development of the RCN Virtual Fleet simulation system for the Department of National Defence.

Copernicus Studios   Halifax, NS
Software Developer   Jan 2014 – Feb 2020
Created interactive educational and entertainment applications for iOS, desktop, and VR.
- **Treehouse VR (Desktop/Steam VR):** Integrated speech recognition technology within a proof-of-concept VR environment using Unity 2018.
- **Alpha's Playroom (iOS):** Developed client-server communication and implemented gameplay logic for voice-based learning games in Unity 5.

Dalhousie University - Department of Psychology   Halifax, NS
Software Developer (Research Support Staff)   Jan 2017 – Jan 2020
- Developed a C++ voice recognition server integrated with Unity via gRPC protocol.
- Created Unity library for voice data capture, server communication, and real-time speech-to-text processing.

Frontier Developments Inc.   Halifax, NS
Software Developer   Aug 2012 – Jan 2014
- Contributed to Kinectimals Unleashed, developing and optimizing gameplay, UI, and animation systems in Unity 4.6; improved performance and user experience while porting the title to Android, iOS, and Windows 8 ARM platforms with integrated art and asset pipelines.
- Kinectimals Unleashed Trailer

HB Studios   Halifax, NS
Software Engineer   Nov 2010 – Jul 2012
- Developed UI and gameplay systems for **FIFA 2012 (Wii)** and **Madden 2013 (Xbox 360/PS3)** using EA's proprietary C++ engine.
- Delivered new Manager Mode features, audio integration, and AI components.

Education

Carleton University   Ottawa, ON
B.C.S. Computer Science - Software and Computing Stream   August 2004 - April 2010

Technical Skills

Engines	Unity
Programming Languages	**C#**, C++, JavaScript, GLSL/HLSL, DirectX, WebGL 2.0
Platforms	Windows, macOS, iOS, Android, HoloLens (UWP), Apple Vision Pro (xrOS)
Tools & Frameworks	JetBrains Rider, Visual Studio, Git, Jira, Docker, Node.js, GitHub Actions, Jenkins, Jira, Confluence