

Salar Rezayani

Robotics Simulation & XR Engineer — Unity / Unreal, ROS, Computer Vision

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Summary

Simulation and XR engineer building real-time 3D systems where data, physics, and perception meet. Currently develop Unity-based XR systems that stream real-time ROS data into 3D environments (CVISS Lab, U. Waterloo). 3+ years across Unity/Unreal (C#), real-time sensor and heatmap visualization, physics-based multiplayer simulation, computer vision and ML. Aerospace-engineering foundation in CFD, FEM, and numerical methods. Focused on robotics simulation: digital twins, sim-to-real workflows, and perception-visualization tooling.

Professional Experience

Research Assistant — XR / Scientific Visualization

[University of Waterloo, CVISS Lab](#)

Waterloo, Canada

Nov 2025 – Present

- Develop Unity-based XR systems for scientific and spatial data visualization with strict correctness and performance validation.
- Integrate real-time ROS data streams into 3D environments; verify mapping consistency via integration testing.
- Profile CPU/GPU/memory on large-scale scenes and validate fixes.

Unity VR Developer

[BMad Technology Inc.](#)

Montreal, Canada

Nov 2023 – Present

- Developed and owned quality of a Quest 3 multiplayer VR simulation using Photon PUN, Meta SDK, Firebase, and MongoDB.
- Built interaction systems, developer tooling, and SDK-migration utilities; validated interaction correctness and usability.
- Debugged multiplayer desync, authority, and timing issues through systematic root-cause analysis — distributed real-time state.
- Maintained CI/CD pipelines (GitHub Actions) and optimized runtime performance using the Unity Profiler.

Full-Stack Developer — AI Platform

[Sibnik AI](#)

Montreal, Canada

2024 – Present

- Designed and delivered an AI platform (web, iOS, admin dashboards, chatbot, RAG); built APIs, MCPs, and integrations across multiple model providers.
- Built a scalable Cloudflare Workers backend for asset ingestion, AI processing, and multi-tenant APIs.
- Implemented ML systems (RAG, embeddings, semantic search) and validated end-to-end workflows; deployed to the App Store with test/production environments.

3D Software Developer (Medical Tech)

[XSENSOR Technology Corp.](#)

Calgary, Canada

Feb 2023 – Sep 2023

- Built a real-time sensor digital twin: ML-driven heatmap visualization of 2,000 sensors in Unity, with correctness validation.
- Developed large-scale 3D visualization tools and tested stability and edge cases.
- Integrated Unity systems with .NET applications over sockets; worked with inverse kinematics and HLSL shaders.

AR Full-Stack Developer

[Blizza Brands Inc.](#)

Toronto, Canada

Jan 2025 – Mar 2025

- Developed AR experiences and validated tracking, animation, and cross-device behavior.
- Built a role-based asset-management platform (Next.js + Strapi) and 3D WebGL product showcases; managed TestFlight releases.

Unity Developer — Full Stack

[Optim Structure Inc.](#)

Montreal, Canada

Jul 2022 – Mar 2023

- Built Unity Android inspection/reporting apps with verified cloud-sync accuracy and an OpenCV+ML barcode scanner.
- Built dashboards and WebGL tools with regression-tested API workflows; improved report-generation efficiency ~4x.

Software & Research Developer (merged)

[Multiple Organizations](#)

Tehran, Iran

Before 2021

- Built backend, fintech, and real-time systems (Node.js, Python, Redis, MongoDB, RabbitMQ, WebSockets).

- Conducted aerospace and image-processing research (CFD, OpenCV, ML, cross-correlation) with validated numerical outputs.

Education

MSc, Computer Science

Sherbrooke, Canada

Bishop's University

2021 - 2023

- Thesis: Sculpting in VR with human hands and memory optimization in Unity (Quest 2).
- Research: EEG-based human decision prediction in VR using ML pipelines.

BSc & MSc, Aerospace Engineering

Tehran, Iran

AmirKabir University of Technology

2013 - 2021

- Focus: image processing, CFD, computer vision, finite element methods, numerical methods.

Skills

Robotics & Simulation: ROS, real-time data streams, digital twins, physics simulation, inverse kinematics, sensor visualization.

3D / XR Engines: Unity (C#), Unreal Engine, Meta Quest SDK, Photon PUN, HLSL shaders, WebGL/Three.js.

AI & Computer Vision: PyTorch, OpenCV, hand-pose/gesture recognition, EEG ML, RAG/embeddings, image processing.

Engineering & Cloud: C#, Python, C++, .NET, CI/CD (GitHub Actions), profiling & optimization, Cloudflare, Google Cloud, Node.js.

Awards & Publications

- Epic Games Unreal Fellowship — selected participant (North America), 2024.
- Publication (in review): Motion Gesture Detection for AR/VR using ML — Rezayani, Butler, 2024.
- Co-author (submitted, 2025): Brain Volume Predicts Skewed Locomotor Output and Lower Temporal Regularity.