

Mehedi Ahmed

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SUMMARY

Senior Unity Engineer with 8+ years of expertise in game development, VR/AR, and real-time 3D applications across multiple platforms. Specialized in architecting high-performance systems, custom shader programming (HLSL, ShaderLab), scalable development pipelines, and AI-driven gameplay systems. Proven track record optimizing complex applications for mobile and standalone hardware while delivering innovative tools that accelerate developer workflows. Experienced with full development lifecycle from concept through deployment on Meta Quest, HTC Vive, Magic Leap, HoloLens, and mobile platforms.

TECHNICAL SKILLS

Engines & Languages: Unity (Unity3D), Unreal Engine 5, C#, C++, HLSL, ShaderLab

Platforms: Meta Quest 2/3/Pro, HTC Vive, Oculus Rift, Microsoft HoloLens, Magic Leap, Google Daydream, iOS (ARKit), Android (ARCore)

Unity Specializations: Custom Editor Tooling, Addressable Asset System, Universal Render Pipeline (URP) / High Definition Render Pipeline (HDRP), Shader Programming, Performance Profiling & Optimization, XR Interaction Toolkit, Physics Simulation, Animation Systems, UI/UX for VR

Systems & AI: Behavior Trees, Hierarchical State Machines, NPC AI, Dialog Systems, Networked Multiplayer, VoIP Integration

Tools & Workflow: Git, Jira, Agile/Scrum, CI/CD, Visual Studio, Rider, Autodesk Maya, Adobe Photoshop

Languages: English (Native), Bengali (Native)

WORK EXPERIENCE

Liminal, LLC – Co-Founder & Lead Engineer *June 2025 – Present*

- Built a custom URP rendering pipeline that replaces the main camera's scene render with world-space texel splatting: an auxiliary camera captures the scene into 256^2 cubemaps through the full deferred lighting stack, a compute pass band-filters visible texels into an append buffer, and each surviving texel is drawn as a world-space quad, so the pixel-art result parallaxes correctly instead of sitting flat in screen space
- Kept the splat path fully GPU-driven, copying compute-shader emission counts straight into indirect draw args so no per-frame count returns to the CPU, and added a second eye-position probe that emits only where the primary lattice misses a surface, closing disocclusion halos without redrawing covered interiors
- Designed a trauma simulation replacing scalar health with a per-actor physiological model across pain, blood loss, vitality, and per-zone function, so an actor can die outright, collapse unconscious, or bleed out depending on the weapon, body zone, and vital structure hit, with lazy tick registration keeping uninjured NPCs at zero per-frame cost
- Built the NPC perception system in Burst-compiled C# on the Job System, running sight and sound evaluation for 100 agents within a 1 ms frame budget
- Designed a semantic octree for spatial queries, letting AI reason about cover, sightlines, and blood evidence without traversing the scene graph every frame
- Enforced assembly isolation with a machine-checked boundary test suite, with systems communicating through shared interfaces and primitive ids so AI holds no reference to trauma or rendering, and violations fail in a single Test Runner pass

SimX – Unity Engineer *August 2023 – October 2025*

- Architected and delivered enterprise-grade VR medical training applications for Meta Quest platforms using Unity (C#), managing full development lifecycle from initial design through production deployment
- Built custom Unity Editor tooling (C#, JSON, Addressables) for dynamic patient equipment management, enabling the team to configure asset loading 60% faster than manual workflows
- Led comprehensive performance optimization initiatives using Unity Profiler and custom tooling, delivering 18% FPS improvements through garbage collection reduction, memory management, material optimization, texture sharing, and draw call reduction
- Engineered a proprietary animation system (C#) optimized for VR, replacing Unity's standard Animator solution to deliver enhanced runtime performance and application-specific functionality

- Established company-wide AI development standards and created standardized context files adopted across the engineering organization, streamlining AI-assisted development workflows
- Developed a texture combiner system (C#, shader programming) that procedurally generates wound textures on patient models, eliminating manual skinned mesh creation per wound variant and accelerating content development by 40%
- Accelerated development velocity by 30% through process improvements, custom tooling, and pipeline enhancements, reducing average feature implementation time while maintaining code quality standards

WIN Reality – Senior Unity Engineer *May 2022 – December 2022*

- Developed high-performance VR training experiences in Unity (C#) for Meta Quest 2, contributing to a leading consumer VR sports training application with thousands of active users
- Engineered physics simulation systems (C#, Unity Physics) that authentically replicate baseball dynamics including ball trajectory, bat collision mechanics, and spin effects for realistic gameplay
- Developed custom shaders (HLSL, ShaderLab, Universal Render Pipeline (URP)) for dynamic visual effects, including performance-optimized trail rendering systems for real-time ball tracking
- Rebuilt application UI leveraging immersive VR interaction paradigms, enhancing user engagement metrics by 13%
- Maintained code quality across the engineering team through comprehensive code reviews, mentorship, and implementation of scalable engineering frameworks supporting high-performance modules

Avrio Analytics – Senior AR Engineer *May 2021 – May 2022*

- Delivered government-facing AR training applications for Magic Leap platform, managing all aspects of project planning, Unity development (C#), and stakeholder communication
- Architected networked multiplayer systems (C#, networking) supporting large-scale collaborative AR experiences with integrated VoIP communication
- Designed sophisticated behavioral AI systems using hierarchical behavior trees (C#, custom framework) to create dynamic, context-aware NPCs for law enforcement de-escalation training with multi-stage adaptive interactions
- Led a cross-functional team of 4 engineers using Agile/Scrum, coordinating efforts to release multiple AR training applications on schedule
- Developed a node-based dialog tree editor tool (C#, Unity Editor) that controlled AI dialog and animations for training scenarios, empowering designers to build complex behaviors 80% faster

Independent – Contract VR/AR Developer *December 2019 – April 2021*

Delivered VR and AR applications for enterprise clients across healthcare and medical training domains.

Tippling Point Media: Developed iOS AR applications (Unity, ARKit, C#) for enterprise clients. Engineered custom fluid simulation shaders (HLSL, ShaderLab) for realistic liquid medication visualization in AR training scenarios.

Pixacore: Built an immersive VR training application (Unity, C#) for Oculus Quest targeting healthcare professionals, delivering specialized instruction for CAR T-Cell cancer therapy procedures.

Code & Craft, Inc – VR/AR Developer *January 2017 – August 2018*

- Delivered multiple consumer-facing applications from prototype through production release, managing technical scope and quality standards across Unity (C#) projects
- Launched one of the first commercial iOS AR applications leveraging Apple ARKit for an innovative retail-focused experience on the App Store
- Contributed to Agile team processes, collaborating closely with designers and stakeholders in a fast-paced startup environment

SELECTED PROJECTS

Operation Viewpoint – Asymmetrical multiplayer VR stealth game (HTC Vive, Unity, C#). Served as lead programmer and contributed to core game design, AI systems, and multiplayer networking.

The Hollows – VR cave exploration experience (HTC Vive, Unity, C#) featuring innovative locomotion mechanics and optimized real-time lighting systems.

The Virtual Memory Palace – Mobile VR spatial cognition training tool (Google Daydream, Unity, C#) built at MIT Media Lab 'Reality Virtually' Hackathon.

EDUCATION

University of Massachusetts Amherst – Bachelor of Science in Informatics

Multidisciplinary program combining computer science, mathematics, studio art, and art history