

Mohammed Motawea

Senior Unity Engineer

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UAE residence visa holder · Egyptian national

SUMMARY

Unity Certified Professional Programmer with 11+ years shipping games, simulations, and XR products across mobile, PC, and VR/AR. Deep specialization in performance optimization and large-scale system architecture in production C#: optimized dense city scenes with 600+ active NPCs from 25 to 60 FPS, architected a 2TB Addressables streaming system that keeps builds under 1GB, and cut multiplayer network desync by 60%. Shipped a commercial simulation title with 85% positive Steam reviews plus an educational edition adopted by three UAE universities. Recently open-sourced a real-time GPU CFD solver and a CAD/BIM importer for Unity.

EXPERIENCE

Principal Unity Engineer

Aug 2023 - Present

Visionaries FZ-LLC · Dubai, UAE

- Architected and built end-to-end gameplay systems and backend services for the simulation title Business Heroes.
- Optimized large city scenes with 600+ active NPCs, improving average frame rate from 25 FPS to 60 FPS on mid-range hardware.
- Re-architected and streamlined 20+ UI screens with a theme-based UI system, reducing UI overhead while simplifying complex financial mechanics.
- Designed scalable save systems, data models, and localization supporting 8 languages, including RTL support.
- Integrated Azure backend services: cloud saving, analytics and telemetry, leaderboards, achievements, and custom build distribution.
- Shipped on Steam with 85% positive reviews, plus an educational edition adopted by three universities in the UAE.

Senior Unity Engineer (AR)

Nov 2022 - Aug 2023

Pretia Technologies, Inc. · Tokyo, Japan (remote)

- Developed high-end AR solutions within the entertainment and media division, delivering 5+ shipped AR products over one year.
- Implemented advanced AR mechanics on top of Pretia's AR-cloud framework, tuned for tracking stability in public spaces.
- Evaluated 15+ technical proposals to ensure architectural feasibility and resource efficiency.
- Worked day-to-day with Japanese product, art, and client teams in an international production environment.

Senior Unity Engineer

May 2020 - Nov 2022

Backlot Studio · California, USA (remote)

- Architected core system components for a multi-platform collaborative filmmaking application (Windows, macOS, iPad).
- Engineered physically accurate simulations of 15+ professional camera types and 30+ lighting fixtures in Unity, enabling distributed teams to previsualize real-world cinematography in-engine.
- Designed and implemented an Addressables streaming system managing 2TB+ of downloadable assets while keeping the app under 1GB.
- Built custom Editor tooling that reduced library-asset integration time by 16 hours per scene.
- Optimized memory and resolved performance bottlenecks across large scene compositions, achieving 60 FPS on PC (HDRP).
- Led the port to iPad, migrating HDRP to URP while preserving visual fidelity at 50 FPS.

Unity Developer

Apr 2018 - May 2020

Elibre DMCC · Cairo, Egypt

- Built a VR-based automated interior visualization platform used for real-estate marketing.
- Engineered procedural furnishing systems generating fully staged layouts in under 2 minutes.
- Reduced marketing material turnaround from 2-3 days to under 2 hours via a fully automated plan-to-VR workflow.
- Collaborated with interior designers to translate technical floor plans into interactive VR experiences.

Unity Developer

Jun 2015 - Mar 2018

Bidaj Studio, Inc. · California, USA (remote)

- Owned client-side architecture for a real-time multiplayer trading card game supporting up to 1,000 concurrent players.
- Implemented turn-based state systems managing 100+ card types and abilities with complex interaction rules.
- Integrated Photon PUN for multiplayer synchronization and Firebase for player profiles and cloud persistence.

- Cut latency-related desync issues by 60% through optimized data serialization and state-change events.

OPEN SOURCE & SELECTED PROJECTS

Wind Tunnel Simulation — real-time GPU CFD *Open source (MIT) · Unity 6 · GPU compute · github.com/Motawe3/unity-wind-tunnel*

- A lattice-Boltzmann solver (D3Q19, TRT, WALE LES) that simulates ~8M cells in real time in compute shaders, with automatic voxelization, live force telemetry, surface pressure and shear heatmaps, and automated A/B test sweeps; built for aerodynamic design exploration and education.

CAD Importer for Unity *Open source (MIT) · Pure C# · github.com/Motawe3/CADImporter*

- Imports STEP, IGES, IFC, glTF, OBJ, STL, and PLY into Unity with normalized units and axes, preserved assembly hierarchies, LOD chains, PBR materials, and physics colliders, through an Editor batch window or a runtime async API.

Unity Editor Tools Suite *Visionaries FZ-LLC · Custom Editor · C#*

- Built six designer-facing tools that turn engineer-only workflows into one-click operations: Google Sheets localization sync (8 languages, RTL), NPC archetype creator/balancer, light/dark theme binder, tooltip creator, and an in-game events authoring system with a stage balancer.

VR Heavy-Weapon Defense — client MVP *Freelance · Unity · Meta Quest · VR*

- Built a two-handed, tripod-mounted weapon rig with constrained yaw/pitch driven by both controllers, wave-based enemy spawning, and a pooled projectile system handling thousands of simultaneous rounds within VR frame budget.

SKILLS

Unity:	Unity 6 (expert): URP / HDRP, SRP internals, Jobs System, Burst Compiler, Addressables, custom Editor tooling, Odin, Photon PUN, Unity Cloud services, XR (OpenXR, AR Foundation, Meta Quest)
Industry 3D:	CAD/BIM-to-engine pipelines (own open-source importer: STEP, IGES, IFC, glTF), digital twins, live telemetry integration
Architecture:	Clean architecture, SOLID, design patterns, scalable frameworks, data persistence and save migration, networking / multiplayer state sync, localization (RTL)
Performance:	Cross-platform profiling, memory management, draw-call reduction, GPU compute, asset optimization, HDRP→URP migration
Languages:	C# (expert), HLSL / compute shaders, Python, C++ (working), JavaScript
Platforms & Tools:	Windows, macOS, iOS, Android, Meta Quest, Steam; Git / GitHub, Azure, Firebase, Node.js, Blender, Adobe Suite
Spoken:	Arabic (native), English (fluent)

EDUCATION & CERTIFICATIONS

Unity Certified Professional Programmer — Unity Technologies · credly.com/badges/a4163443-85de-4e5c-af95-d3fa8238079b	2026
Unity Certified Expert Programmer — Unity Technologies (credential expired)	2023
B.Eng. Computers & Control Systems — Mansoura University, Egypt	