Mohammad Mohammad

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EDUCATION

Carleton University, Ottawa, ON *Expected May 2028*

B.C.S. Honours in Computer Science, AI & Machine Learning Stream | GPA: 3.92/4.0

- Dean's Honours List; coursework: Computer Graphics, Linear Algebra, Data Structures & Algorithms

EXPERIENCE

QA Automation Developer *May 2026 – Present*

Government of Canada, Department of National Defence | Ottawa, ON

- Designed and wrote QASE, a C# test-automation framework that converts recorded user interactions into Excel-driven Selenium scripts, so testers no longer write each case by hand.
- Built a debug mode that pauses a failed run, lets the tester edit the Excel steps live and resumes from the last passing step; wrote the specs for dashboarding, test tagging and CI/CD integration.

IP Network Engineering Intern *Jan 2026 – Apr 2026*

Nokia | Ottawa, ON

- Worked with firmware engineers to diagnose data-path performance issues under load with packet-level analysis.
- Wrote Python and Tcl regression suites that test protocol state machines and security logic.
- Built a Python testbed-mapping tool that automated environment setup, so regression runs start from the same state.

PROJECTS

Hitreg Lab: FPS Netcode and Hit Registration *Nov 2026*

Unreal Engine 5 (C++), dedicated server, Python | Personal project

- Built a UE5 C++ FPS test range with client-predicted firing and server-side rewind lag compensation (pose history, analytic hitbox tests, own clock sync): 100% of on-screen hits registered up to 150 ms RTT vs 23-30% without.
- Measured peeker's advantage over a dedicated server across RTT, tick rate and interpolation delay (160 trials); added controller aim assist with a bot-thumb benchmark and a client-side kill cam (670 B/s per player).

LinguaSpy: Language-Learning Spy Game *Sept 2026 – Present*

Unreal Engine 5 (C++), Python, Blender | Personal project

- Designed and built a top-down UE5 C++ spy game where the player keeps cover by answering locals in 4 languages across 6 missions.
- Implemented the learning core in C++: a sentence grader that tolerates accents and punctuation, and a Leitner spaced-repetition scheduler (10 min to 21 days) whose box picks the exercise type, from word tiles to free typing.
- Added a camera occlusion fade that sphere-sweeps from camera to player each tick and dithers out walls in the way.
- Versioned the save format with stepwise migrations (v4) and fixed old saves loading as current, since UE skips writing values equal to the class default.
- Dialogue and missions are UPrimaryDataAsset graphs; a custom Slate editor tab edits and validates dialogue with undo. 23 headless UE automation tests cover the grader, scheduler, saves and missions.
- Built the NPC conversation and mission flow: answers drain a cover meter, a blown cover branches into a practice drill, and objective graphs advance missions on conversation outcomes and flags.

Monte Carlo Path Tracer *Oct 2025 – Nov 2026*

C++17, OpenMP, WebAssembly | Personal project, extended from Ray Tracing in One Weekend

- Added a binned-SAH BVH that renders a 17K-triangle mesh scene ~250x faster than brute force, and OpenMP rendering with per-pixel RNG streams.

TECHNICAL SKILLS

Languages: C++ (C++17/20), Python, C#

Engines & Graphics: Unreal Engine 5 (C++, Slate, Automation tests), Blender Python API, GLM, GLFW/OpenGL, 3D vector math

Tools: Git, CMake, Visual Studio, GoogleTest, GitHub Actions, Docker, Linux