Roy **Lu** | Software Developer ✉ roylu99@gmail.com | 🏠 Mississauga, ON | 📱 647-620-3980 | in LinkedIn | 🔗 hylu.dev

Work Experience

Game Programmer (Unity) 🔗 *Oakville, ON*
Research | Archipelago of Design *October 2024 – Current*
- Collaborated with a **multidisciplinary team** on Inner Alliance, a DEI-focused educational strategy game for military organizations,
- Developed a procedural hex-based gameplay system using **voxelization, custom mesh generation, and shader techniques** to support varied environments.
- Architected core game systems using **MVP architecture and SOLID principles** to build maintainable, scalable systems.
- Created in-editor tools for efficient content creation, enabling rapid iteration by designers and researchers.

Backend QA Systems Analyst *Toronto, ON*
Internship | Proofpoint *May 2020 – August 2021*
- Contributed to the backend testing team for a large-scale mail security platform, focusing on **validating backend microservices**
- Wrote **custom software tools** to simulate production scenarios and automate backend testing workflows.
- **Spearheaded QA on a new project**, taking ownership of end-to-end testing, regression, and performance for a product hosted on a new platform. Led meetings to discuss strategies, **fostering cross-disciplinary collaboration**.
- Developed a highly configurable, **multi-threaded WPF Bulk Mail tool**, replacing legacy systems and accelerating testing workflows by up to 300%.

Projects

Ubisoft Next 2024 (Individual) 🔗 *C++, OpenGL*
3D, turn based, strategy game that pits you 1v1 against another player amidst a dying star.
- Built a **custom 3D rendering engine** using OpenGL and a line-drawing API with projection, culling, and meshes
- Implemented advanced engine features including **vertex shading, collision detection, and a particle system**, enhancing visual quality and gameplay interactivity.

Dungeon Company (Technical Lead) 🔗 *Steam, C#, Unity*
A rogue-like card battler with thousands of downloads and positive reviews on Steam
- Authored **technical proposals, system diagrams, and architecture plans** focused on event-driven design and reducing coupling through clean, pattern-driven solutions
- **Managed a team of 4 programmers** across gameplay and UI, organizing sprint planning, assigning tasks via a Kanban board, and hosting weekly meetings
- Collaborated with design, art, and production leads to define scope, establish pipelines, and align on project goals

Education

Sheridan College *Oakville, ON*
College Graduate Certificate in Advanced Game Programming *Sep 2023 – Jun 2024*
Teaching Assistant for Computer Math I and tutor for Advanced Game Programming

University of Toronto Mississauga *Mississauga, ON*
Honours Bachelor of Science in Computer Science *Sep 2017 – Jun 2022*
Web Developer for the Digital Enterprise Management Association and the CCIT (Com. Tech) Department

Skills

Graphics & Math: Expert in linear algebra and 3D rendering pipelines for game engines. Proficient in designing shaders (Phong lighting), normal/cube mapping, and advanced mathematical transformations like projection matrices and quaternions. Applied culling, clipping to optimize rendering performance.
Gameplay Systems: Design scalable and flexible game systems like inventories and dialogue.
Developed AI-based enemy combat systems using state machines and behavior trees.
Programming: C++ (1 year), C# (3 years), JavaScript (3 years), HLSL (1 year)
Software: Unity (2 years), Visual Studio (3 years), Git (5 years), Jira (1 year)

Awards

Mar 2024	**Ubisoft NEXT Finalist**, Independent C++ **game built within 72 hours**, recognized for advanced 3D graphics rendering and innovative gameplay.	*Ubisoft*
Aug 2024	**Gaming Garage 2nd Best Game & 2nd Best UI**, For excellence in user interface design and engaging game mechanics.	*CNE*