Roy **Lu**

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Projects

Darkstar Showdown (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.

Slime Hunter (Team) 🔗 — *C#, Unity*
3D TOP-DOWN ACTION RPG WHERE YOU GEAR UP AND HUNT SLIMES IN A BEAUTIFULLY HAND-CRAFTED WORLD
- Owned key systems including melee combat, spell casting, inventory management, and responsive UI
- FMOD audio implementation with adaptive music
- Responsible for UI implementation with controller support and input device adaptive button prompts

PianoTypes (Individual) 🔗 — *SvelteJS, CSS*
WEB-BASED PIANO THAT PROVIDES A FULL-RANGE, CUSTOMIZABLE PIANO THAT IS FAST, SLEEK, AND EASY-TO-USE.
- Designed a responsive UI with customizable instrument sounds, pedaling, range, and a note visualizer.
- Integrated MIDI playback with media controls and tunable AI midi generation, providing users generative music

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)
Soft Skills:	Strong communicator and collaborator in cross-functional teams, empathetic leadership, accountability, and problem-solving for technical challenges.

Work Experience

Math/Programming Teaching Assistant — *Oakville, ON*
SHERIDAN COLLEGE — *Sept 2023 – August 2024*
- Designed and delivered interactive lessons on object-oriented programming and path-finding algorithms, graphs, and more.
- Developed and led supplementary lessons, reinforcing key concepts with hands-on exercises, resulting in a 15% higher test scores

QA Analyst Intern — *Toronto, ON*
PROOFPOINT — *May 2020 – August 2021*
- Demonstrated leadership skill by leading 5+ training sessions on backend testing, improving cross-disciplinary collaboration.
- Developed .NET and Python tooling to automate load-testing and analysis at 300% faster than manual methods.
- Spearheaded performance testing for AWS-based services, identifying bottlenecks that reduced server response times by 15%

Awards

Mar 2024	**Ubisoft NEXT Finalist**, Game built within 72 hours, recognized for advanced 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*

Education

Sheridan College — *Oakville. ON*
ADVANCED GAME PROGRAMMING — *Sep 2023 – Jun 2024*