

Roy Lu

SOFTWARE DEVELOPER

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Education

University of Toronto Mississauga

HONOURS BACHELOR OF SCIENCE IN COMPUTER SCIENCE

Mississauga, ON

Sep 2017 - Jun 2022

- Web Developer for the Digital Enterprise Management Association and the CCIT (Com. Tech) Department.
- Relevant Courses: Software Patterns, Web Development, Data Structures, Algorithm Design

Sheridan College

COLLEGE GRADUATE CERTIFICATE IN ADVANCED GAME PROGRAMMING

Oakville, ON

Sep 2023 - Jun 2024

- Teaching Assistant for Computer Math I and tutor for Advanced Game Programming.
- Relevant Courses: Game Engine Architecture, Computer Graphics, Game Networking

Work Experience

Hiro Technologies

Remote, Canada

SOFTWARE DEVELOPER

June 2025 - Current

- Led front-end architecture for a digital physiotherapy platform using Next.js App Router, React, and TypeScript, delivering a responsive UI.
- Architected and deployed scalable backend services using Firebase for real-time data synchronization and user management.
- Implemented a mobile-first design system with Tailwind CSS, handling Vercel deployments and ensuring web accessibility compliance.
- Developed motion-controlled gameplay mechanics using Unity and WebGL, integrating AI-driven pose tracking for physiotherapy.
- Optimized rendering pipelines and game logic for particle effects, ensuring consistent 60 FPS performance across all devices.
- Established CI/CD pipelines and code review processes, improving code quality and reducing deployment friction for the engineering team.

Brightmir AI

Remote, Canada

WEB DEVELOPER

April 2025 - June 2025

- Led the comprehensive UI/UX redesign for a multiplayer, blind-accessible game, prioritizing inclusive design principles.
- Developed and implemented accessible user interfaces using Next.js and adherence to web accessibility standards.
- Formalized design specifications, managed graphic asset integration with artists, and contributed to product design meetings.

Archipelago of Design

Oakville, ON

GAME PROGRAMMER

Oct 2024 - Current

- Co-developed core gameplay features for "Inner Alliance", a DEI-focused strategy game, using C# and Unity in a multidisciplinary agile team.
- Designed custom in-editor tools (hex mesh generation, voxelization, shaders), reducing level creation time by 50% for the design team.
- Architected a modular codebase using MVP architecture and SOLID principles, significantly improving system maintainability.
- Streamlined developer onboarding by creating comprehensive technical documentation for internal tools and system architectures.

Sheridan College

Toronto, ON

TEACHING ASSISTANT

Dec 2023 - Jun 2024

- Taught introductory discrete mathematics topics, including combinatorics, relations, graphs and trees, and proofs.
- Instructed students on fundamental programming principles, including software design patterns, object-oriented programming (OOP), data structures, and linear algebra.
- Planned and led weekly supplementary classes in collaboration with the professor to reinforce course material.
- Developed targeted exercises and instructional materials to support student understanding of complex math concepts.

Proofpoint

Toronto, ON

BACKEND QA SYSTEMS ANALYST

May 2020 - Aug 2021

- Engineered hybrid automated/manual testing frameworks for SaaS backend microservices, ensuring 99.9% reliability for critical data flows.
- Developed production-simulation tools using Python integrated with Jenkins CI/CD, automating regression testing and reducing cycle time.
- Led performance and load testing initiatives for platform migrations, identifying and resolving critical memory leaks before deployment.
- Built a multi-threaded WPF internal tool that increased testing throughput by 300%, adopted by the QA team for daily validation.

Skills

Programming Languages C#, JavaScript, Python, Java, Bash/Shell, C++, Rust

Frameworks & Libraries .NET, NextJS, Redux, Unity, OpenGL

Tools & Platforms Git, Jira, Linux, Docker, CI/CD, Cursor, Copilot, OpenAI, n8n

Areas of Expertise Full-Stack Applications, Systems Design, UI/UX, Databases, Game Development

Projects

Technical Lead | Moon Stray Games

DUNGEON COMPANY

- Led the end-to-end engineering and release of "Dungeon Company", managing a cross-functional team to deliver a commercial-quality game.
- Led an agile development team, implementing SCRUM methodology with weekly standups and sprint reviews to drive collaboration.
- Established automated build and deployment pipelines (CI/CD), ensuring reliable delivery of updates to end-users.
- Architected a scalable event-driven framework that decoupled systems, improving code maintainability and team velocity.
- Implemented rigorous automated testing strategies that minimized production bugs and ensured platform stability.

Escape Game Maker (Serious Play 2025)

C#, UNITY

August 2025

- Led front-end implementation for "Mini Escape Maker," an educational tool enabling teachers to create LLM-powered, interactive mystery games.
- Accelerated development by utilizing a hybrid AI-assisted workflow (Cursor) and BulmaCSS to rapidly prototype and deploy the user interface.
- Contributed to AI integration with OpenAI LLMs via prompt engineering to enable the procedural generation of core game content.

Custom 3D Game Engine

UBISOFT NEXT 2024 (FINALIST) | C++, OPENGL

August 2025

- Developed a custom 3D game engine from scratch using C++ and OpenGL to power a turn-based strategy game for the Ubisoft Next competition.
- Implemented engine subsystems including ECS architecture, vertex shaders, and collision without external libraries.
- Implemented custom vertex-based line rendering and camera transformation support in the engine's rendering pipeline.

Bujots: Web Journaling

INDIVIDUAL | REACTJS, MONGODB, TYPESCRIPT

August 2023

- Created a full-stack web application for online journaling, featuring user authentication, CRUD functionality, and REST API.
- Implemented full user registration and data handling using ExpressJS with token authentication
- Developed a sleek front-end interface with state management through Redux to track notes, images, and autosaving.

Aerospace Performance Analysis (University of Toronto)

PYTHON, NUMPY

2022

- Programmed a system-level simulation implementing a Classed Jackson-Network model and leveraging NumPy for efficient matrix-based analysis of large datasets.
- Applied M/M/1 Queueing Theory to model job service and flow, incorporating complex routing probabilities and simulating a multi-departmental manufacturing network.
- Identified system instability in the Manufacturing rework process, proving it was a critical bottleneck with an average response time equivalent to 67.75 days.

Awards

Jun 2025 **Winner**, XP Summit Pitch Competition, 1st place pitching Dungeon Company

Ubisoft

Mar 2024 **Ubisoft Next Finalist**, Independent C++ Game built within 72 hours

Ubisoft

Aug 2024 **Gaming Garage 2nd Best Game & 2nd Best UI**, For excellence in user interface design and engaging gameplay mechanics

CNE

Speaking Engagements

The Development Journey of Dungeon Company

GAME DEVELOPMENT WORKSHOP (SHERIDAN COLLEGE)

April 2025

- Engaged game development students at a Sheridan College with a presentation detailing our game's concept-to-development process. Included an interactive playtest and Q&A.

Inner Alliance: Contributing to WPS Momentum, One Game at a Time

PEDAGOGIES FOR PEACE SYMPOSIUM (TORONTO METROPOLITAN UNIVERSITY)

February 2025

- Facilitated a cohort of women's peace and security leaders, leading group discussions on using games as an engaging medium for sharing, teaching, and challenging gender-related issues.
- Guided participants through learning and playing a board game, introducing many to this experience for the first time and using hands-on gameplay to illustrate key concepts.