Robin Leman

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EDUCATION

University College London September 2025 - September 2026
MSc in Computational Statistics and Machine Learning. *London, UK*

- Anticipated Coursework: Supervised & Unsupervised Learning, Deep Learning, Reinforcement Learning, Statistical NLP

McGill University September 2019 - May 2022
BSc in Physics and Computer Science. CGPA: 3.82/4.00. *Montreal, Canada*

- Led a 10-person exec team as President of GameDev McGill; organized workshops and hackathons for 150+ students.

WORK EXPERIENCE

Electronic Arts - Respawn Entertainment July 2023 - September 2025
Software Engineer - C++ *Vancouver, Canada*

- Designed and implemented a high-performance Entity-Component-System library with EnTT, improving feature scalability and runtime performance for highly parallelized, data-driven simulations.
- Implemented and optimized cross-platform networking code for real-time replication, interpolation, and prediction, reducing memory usage across servers and clients.
- Designed a performant runtime type reflection system with entt::meta, leveraging modern C++ and meta-programming, enabling low-overhead data serialization in large-scale systems.
- Developed a specification testing framework, enabling scalable automated validation and improving system resilience.

Relic Entertainment - SEGA June 2022 - June 2023
Associate Programmer - C++, Python *Vancouver, Canada*

- Developed data-oriented gameplay systems within an Entity-Component-System architecture based on EnTT, focusing on cache efficiency for large-scale simulations.
- Designed and implemented a QuadTree spatial partitioning system and State Machine data structures, concurrently simulating 1600+ AI entities in a highly parallelized environment.
- Optimized multi-threaded StateTree data structures by 25%+, implementing highly performant squad-based AI behaviors.

Microsoft - The Coalition Xbox May 2021 - August 2021
Software Engineer Intern - C++, Python *Vancouver, Canada*

- Profiled and analyzed Unreal Engine 5's Chaos and Nanite systems, conducting performance benchmarking tests against Havok and PhysX to optimize real-time simulation on Xbox and PC.

Ubisoft June 2020 - August 2020
Generalist Programmer Intern - C++, C#, Python *Montreal, Canada*

- Designed a high-performance, voxel-based buoyancy simulation algorithm in an Entity-Component-System architecture, applying numerical integration methods to simulate real-time physical models.

PERSONAL PROJECTS

Cart-Pole Reinforcement Learning Agents | C++

- Implemented PPO and REINFORCE agents from scratch in C++, reaching 500 maximum reward in sub 250 batches.
- Built Adam, SGD, and SGD with momentum optimizers, running comparative analysis on variation and convergence.
- Engineered a 2D physics engine with rigid bodies and joint constraints, and an SFML renderer for real-time visualization.

Tiny-LLM | Python, PyTorch

- Designed and trained a custom 51M-parameter decoder-only Transformer in PyTorch for next-token prediction, achieving a perplexity of 34 on WikiText-103 after 50,000 iterations.

GPU-Accelerated Raytracer | C++, CUDA, OpenGL

- Built a raytracer with CUDA and OpenGL interoperability, featuring progressive rendering for real-time visual feedback.
- Implemented anti-aliasing, depth of field, HDR tone mapping, a procedural skybox, and physically-based materials.

Debris Disk Renderer | C++, OpenGL

- Developed a software to visualize debris disks in 3D, used by the McGill Space Institute in the research of exoplanets.
- Optimized the engine with multi-threading and GPU programming, supporting different scattering functions.

SKILLS

Programming Languages: C++, C, Python, Rust, Bash, Java, C#
Tools & Libraries: PyTorch, TensorFlow, CUDA, OpenGL, Unreal Engine, Unity, Git, Linux
Languages: English, French (Bilingual)