

Quinn Arbolante

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Education

Northeastern University, Boston, Massachusetts

(Graduating August 2025)

Master's of Computer Science

- Notable courses: High-Performance Computing, Computer Graphics, Machine Learning

Northeastern University, Boston, Massachusetts

(Graduated Dec 2024)

Bachelor's of Computer Science and Mathematics, cum laude

3.5/4.00 cumulative GPA

Skills

- Languages: C, C++, Rust, Python
- C++-specific: SDL, OpenGL, Vulkan, CUDA

Experience

Embedded Software Intern, Formlabs

(May 2025 - Present)

- Developing application-level embedded C++ for upcoming products that will be shipped
- Coding an RFID reader that detects cards and executes/manages transactions between user cards and 3D printers

Researcher, Northeastern University

(Jan 2023 - June 2024)

- Conducted graphics research on using depth buffers to determine the best way to simplify a mesh
- Created a headless renderer to do fast image processing of depth buffers of meshes in Rust using Vulkan
- Awarded Northeastern's PEAK Ascent Award of \$1500 for research
- Submitted research to SIGGRAPH Asia 2023 and helped moderate events as a student volunteer at SIGGRAPH Asia 2023

Teaching Assistant, Northeastern University

(May 2023 - Aug 2023)

- Conducted office hours and collaborated with professor on CS3530 (Applied Geometric Representation and Computation), a graduate course covering polygon triangulation, convex hulls, path finding, motion planning, collision detection, and mesh simplification
- Assisted students with coding in C++ and implementing algorithms such as A* and gift wrapping

Fields Undergraduate Research Program, Toronto, ON

(June 2022 - Aug 2022)

- Participated in a paid math research experience for undergraduates (REU)
- Researched ways to solve partial differential equations with Monte Carlo methods (Metropolis-Hastings algorithm, Feynman-Kac formula)
- Implemented neural networks with Python (JAX) to represent equation solutions found by our methods

Projects

Operating System Implementation (C, Assembly)

(May 2025)

- Implemented user-level threading, process scheduler (multi-level feedback queue), SD card driver, virtual memory, privilege levels, and a Unix-like file system on an emulated RISC-V CPU
- Wrote Assembly code using the RISC-V ISA

Raytracer (Rust)

(December 2023)

- Created a raytracer with a positionable camera and objects, anti-aliasing, depth of field, .obj loader, custom materials (<https://github.com/Cubostar/cubotracer>)
- Used nalgebra for the math library and rand for random number generation

Mesh Simplification (C++)

(December 2022)

- Implemented an algorithm for simplifying a 3D mesh via vertex decimation (Schroeder 1992) with OpenGL
- Created a presentation/demo video (<https://www.youtube.com/watch?v=HtsKxlg50b0>)
- Wrote shaders for GPU in GLSL

Interests

Fanfiction, mahjong, Counter-Strike, breaking