

# Quinn Arbolante

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Available May - Aug 2024

## Education

Northeastern University, Boston, Massachusetts

(Graduating May 2024)

Bachelor's of Computer Science and Mathematics

- Honors: 3.62/4.00 cumulative GPA
  - Related Courses: Algorithms, Machine Learning, Computer Graphics, Pattern Recognition and Computer Vision
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## Skills

- Languages: Python, C++, Rust, Java
  - C++-specific: SDL, OpenGL
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## Experience

Researcher, Northeastern University

(Jan 2023 - Dec 2023)

- Paid graphics research on defining a way to determine the most efficient method of simplifying a mesh
- Created a .obj model loader in Rust using Vulkan to perform experiments
- Submitted poster for SIGGRAPH Asia 2023 (rejected)

Fields Undergraduate Research Program, Toronto, ON

(July 2022 - Aug 2022)

- Math research experience for undergraduates (REU)
- Researched ways to solve partial differential equations with Monte Carlo methods (random walks, Markov chains)
- Applied neural networks and reinforcement learning to improve known methods to solve partial differential equations

Software Engineering Coop, Nuvera Fuel Cells, Billerica, MA

(Jan 2022 - June 2022)

- Modeled and simulated fuel cells with finite element analysis methods
  - Used machine learning techniques (cluster analysis, regression modeling) to analyze degradation of fuel cells
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## Projects

Raytracer (Rust)

(December 2023)

- Created a raytracer in Rust via *Raytracing in One Weekend*
- Uses nalgebra for math library and rand for random number generation
- Positionable camera and objects, anti-aliasing, depth of field

Mesh Simplification (C++)

(December 2022)

- Implemented an algorithm for simplifying a 3D mesh via vertex decimation with OpenGL
- Created a presentation/demo video (<https://www.youtube.com/watch?v=HtsKxlg50b0>)
- Utilized ideas from multiple research papers in implementation

Seam Carving (Java)

(Mar 2021)

- Created a program that can decrease the resolution of an image by removing the least important seams. The process can be viewed in real time, and the removal of a horizontal or vertical seam can be done randomly or manually.
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## Extracurriculars

- Math, coding, gaming, reading, writing