Quinn Arbolante

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www.quinncubostar.com
Available June - Aug 2024

Education

Northeastern University, Boston, Massachusetts (Starting Fall 2024)
Master's of Computer Science
- Graduate Courses Taken: Algorithms, Machine Learning, Computer Graphics, Pattern Recognition and Computer Vision

Northeastern University, Boston, Massachusetts (Graduated Dec 2024)
Bachelor's of Computer Science and Mathematics 3.62/4.00 cumulative GPA

Skills

- Languages: Python, C++, Rust, Java, JavaScript, HTML, CSS
- C++-specific: SDL, OpenGL, Vulkan

Experience

Researcher, Northeastern University (Jan 2023 - Present)
- Working on new research project to improve the rendering speed of radiance fields from 3D Gaussian splatting
- Conducted graphics research on using depth-buffer differences to determine the best way to simplify a mesh (submitted paper to SIGGRAPH Asia 2023)
- Coded in Rust using Vulkan and Python using PyTorch
- Helped moderate events as a student volunteer at SIGGRAPH Asia 2023

Teaching Assistant, Northeastern University (May 2023 - Aug 2023)
- Taught a graduate course covering polygon triangulation, convex hulls, path finding, motion planning, collision detection, and mesh simplification
- Helped students with assignments and final projects by meeting with them regularly
- Collaborated with professor on a weekly basis to better structure the course

Fields Undergraduate Research Program, Toronto, ON (July 2022 - Aug 2022)
- Participated in a 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 with a positionable camera and objects, anti-aliasing, depth of field, .obj loader, custom materials
- 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 with OpenGL
- Created a presentation/demo video (https://www.youtube.com/watch?v=HtsKxlg50b0)
- Utilized ideas from multiple research papers in implementation
- Wrote custom shaders to use the GPU in GLSL

Seam Carving (Java) (Mar 2021)
- Created a program that can decrease the resolution of an image by removing the least important seams
- Made a custom image processor to compute and remove seams