Jack Blazes

blazec@alum.mit.edu | https://jackblazes.net | https://github.com/blazecus

Key Skills

Skills: 3D Graphics Software and Algorithms, 3D Geometry Processing, Rendering, Shaders, Point Cloud Processing, Mesh Processing, Video Game Development, Physics Simulation, Software for Additive Manufacturing
Languages and Software Tools: C++, Python, C#, Java, Godot, Unity, Processing, HLSL, OpenGL, Vulcan

Professional Experience

Microvision (current) — **Redmond, WA**
Software Engineer — **August 2023 - present**

- Developing visualization, simulation, and automated calibration software for an automotive LiDAR product that provides an accurate and noise-free point cloud for vehicles traveling at highway speeds

Inkbit — **Medford, MA**
Software Engineer, Intern, 6-A Master program at MIT — **February-September, 2022**

- Engineered system in C++ to procedurally map user-defined patterns across the surfaces of 3D meshes in a voxel representation used by a 3D printer, and wrote Master's thesis on the method
- Allowed users of Inkbit's Vista additive manufacturing platforms to print parts with customized high definition surface textures, extrusions, or connection patterns between two materials
- Optimized software to run quickly on billions of voxels, and developed tool to view results with mesh approximations

Roblox — **San Mateo, CA**
Software Engineer, Intern — **June-August, 2021**

- Built a "Parental Controls" system for spending on in-game currency on the Roblox website built in C# .NET

Advanced Micro Devices — **Boxborough, MA**
Software Engineer, Intern — **June-August, 2020**

- Optimized shader compilation using a neural network, using PyTorch and LLVM
- Tokenized input for neural network using natural language processing concepts in Python

T-Mobile — **Seattle, WA**
Software Engineer, Intern — **July-September, 2018-2019**

Education

Massachusetts Institute of Technology — **Cambridge, MA**
Master of Engineering in Electrical Engineering and Computer Science — **September 2022**
Concentration on Computer Graphics
Bachelor of Science in Computer Science and Engineering — **June 2022**

Projects and Leadership

Visual Acuity Testing in VR — **2023-present**
Volunteering as a programmer at the Lee Lab at University of Washington to screen for visual impairments using VR headsets
L-Trees (https://computing.mit.edu/news/algorithms-for-art/) — **2019**
Built a system that procedurally generates and renders different types of trees and landscapes using L-systems
MPM-MLS in Unity (https://github.com/blazecus/3D-Liquid-MPM) — **2021**
Built a 3D implementation of the MPM method for particle based liquids and solids simulation in Unity
LumiCycles (https://github.com/blazecus/LumiCycles) — **2023**
Built Peer to Peer online multiplayer game in Godot
Teaching — **2019-2021**
Teaching Assistant for Computer Graphics and Lab Assistant for Fundamentals of Programming at MIT
Research — **MIT**
Robotics physical simulation research at MIT CSAIL, robotics simulation at MIT AeroAstro — **2019-2020**
Game Jams and Development — **https://itch.io/profile/blazecus**
Judo Competitor, Judo Club, Varsity Crew, Origami Club, Game Development Club — **2019-present**