Logan Bowers

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Passionate Graphics/Game Programmer/Software Architect creating simple solutions to complex problems.

EDUCATION

Georgia Institute of Technology | Atlanta, GA | Masters

B.S., Computer Science | 4.0 GPA — Dec 2022

M.S., Computer Science with Computer Graphics Concentration — Expected Spring 2024

Relevant Coursework: Linear Algebra, Computer Graphics, Raytracing, Computer Architecture, Parallel Computing, Object-Oriented Design/Programming, Data Structures and Algorithms, Computer Vision, Computer Animation

PROJECTS

Slider | Team, Game Systems/Graphics Programmer, Unity, C#, 2D Puzzle, Steam, GDC IGF Finalist

http://github.com/randomerz/Slider — Jan 2022-present

- Spearheaded programming effort for critical custom game systems such as dynamic lighting with lightmaps, A* pathfinding, behavior tree AI, event-based dialogue, and dynamic graph structures.
- Engineered custom lightmap solution and pixel shaders using HLSL. Used Caching and vectorization to optimize.
- Managed Architecture of large codebase using Clean Code, SOLID, and Design Patterns (Observer/Singleton).

Sigma (Custom Game Engine) | Individual, C++, 3D, OpenGL, GLSL Shaders — July 2019-present

https://github.com/Bowers-L/SigmaEngine

- Rendered 3D models in OpenGL with vertex buffers and VAOs using index buffers to optimize space.
- Modeled light sources with ambient, diffuse, and specular properties using GLSL shaders with material uniforms.
- Constructed a virtual 3D camera with input using Model View Projection (MVP) Matrix and GLM library.

Blood Favor | Team, Technical Lead, Tools/PCG Programmer, Unity, C#, 3D FPS Roguelike

https://github.com/Abnormal202/BloodFavor — Fall 2022

- Implemented pseudo-procedural generation of levels using abstract graph data with randomly chosen rooms.
- Utilized DFS Graph Algorithms for traversal, cycle detection, and backtracking.
- Created custom tool with UIBuilder and Scriptable Objects for designers to automate integration of level flows.

Ray Tracer Engine | Individual, 3D, Custom Engine, Java Processing

https://github.com/Bowers-L/Ray-Tracer — Spring 2023

- Developed ray tracing engine with ADS lighting, shadow casting, geometric intersections, instancing, matrix stack.
- Implemented Ray Tracing Acceleration for 100k poly models using Bounding Volume Hierarchy.
- Experimented with distributed ray tracing techniques such as soft shadows, reflective surfaces, and motion blur.

One Way Out | Individual, GBA Custom C Engine, C, 2D Metroid-Style Platformer

https://github.com/Bowers-L/OneWayOut-GBA-Final-Project- — Spring 2020

- Employed low-level dynamic memory allocation with raw pointers in C to manage game object data.
- Innovated rendering technique for large backgrounds by swapping textures between VRAM sections with DMA.
- Used hardware interrupts to implement audio by using DMA to sampled sound bytes into hardware registers.

WORK EXPERIENCE

Stellar Science | Scientific Software Development Intern, C++, Project IDASS — Summer 2021

- Maintained, debugged, refactored large-scale C++ system using best practices.
- Contributed to collaborative Agile Software Development environment with Unit Testing and CI/CD Practices
- Iterated on company mockups to implement image batch processor UI in QT with File I/O

SKILLS

- **Programming** | C++, C#, C, Java, Rust, Python, JS/TS, GLSL, HLSL, HTML/CSS
- **Game Engines** | Unity, Unreal, Game Maker, Godot
- **Industry** | Game Engine Architecture, 3D Graphics, Software Architecture, Agile, OOD/OOP, TDD/BDD
- **Tools/APIs** | Perforce, Git, Github, Trello, Redmine, OpenGL, QT, React Native
- **Soft** | Leadership, Communication, Creativity, Reliability, Innovation, Self-Motivated