Jack Hoggard

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EXPERIENCE

Software Engineer **Divine Gaming Inc.** **June 2022 - April 2023**

- Spearheaded the development of a cutting-edge video game, improving gameplay efficiency and reducing load times.
- Enhanced non-player character (NPC) behavior by integrating advanced pathfinding algorithms, resulting in a 35% performance boost.
- Reduced resource consumption by 25% through the implementation of asynchronous loading using multithreading and parallel processing.
- Conducted agile sprint planning and participated in cross-functional team meetings to streamline project delivery.

EDUCATION

The University of Texas at Dallas | Richardson, TX **May 2025**

B.S. in Computer Science | GPA: 3.7 / 4.0

- **Relevant Courses:** Computer Graphics, Machine Learning, Operating Systems, Advanced Data Structures & Algorithms, Software Engineering, Computer Networks, C/C++ Programming in a UNIX Environment, Linear Algebra

PROJECTS

RayDream

Advanced Ray-Tracing Rendering Engine Java Java | ImGui | Git

- Engineered a high-performance raytracing engine in Java, enabling realistic image generation with advanced rendering techniques like reflection, refraction, and shadowing.
- Optimized performance with bounding volume hierarchies (BVH) and kd-trees, reducing render times by 50%.
- Created a user-friendly GUI for real-time editing of scene properties and raytracing parameters.

PolyScene

Interactive 3D Modeling and Rendering Tool C++ | OpenGL | ImGui

- Designed a robust 3D modeling application with support for polygonal mesh creation, editing, and rendering.
- Implemented advanced lighting models, including Phong shading and physically-based rendering (PBR).
- Integrated GPU acceleration to enable real-time manipulation of complex 3D scenes.
- Developed intuitive UI elements using ImGui for seamless user interaction.

ShaderBench

Custom Shader Development Toolkit Python | GLSL | Qt

- Developed a cross-platform GUI application for creating and testing GLSL shaders in real time.
- Provided an extensive library of prebuilt shader templates, including water, glass, and fire effects.
- Designed a modular node-based interface to simplify shader programming for artists and developers.
- Enabled export of optimized shader code for seamless integration with popular game engines.

AWARDS

Eagle Scout | Demonstrated leadership, initiative, and project management by completing a community service project of lasting impact.

Dean's List | Recognized for academic excellence, ranking in the top 10% of the School of Computer Science and Engineering.

TECHNICAL SKILLS

Languages | Java, Python, C, C++, SQL, JavaScript, HTML/CSS

Frameworks & Tools | OpenGL, Vulkan, GLSL, OpenCL, Qt, ImGui, Git, Docker

Specialized Knowledge | Raytracing Algorithms, Physically-Based Rendering, GPU Programming, Multithreading, Procedural Generation, Shader Development