

EDUCATION

Lexington, KY	University of Kentucky	Expected: May 2023
<ul style="list-style-type: none">- Major: Computer Science, B.S. (GPA: 3.92, Specialization: Data Science / Math)- Courses: Computer Graphics, Linear Algebra, Systems Programming, Applied Machine Learning, Algorithms and Data Structures, Statistics, Probability, Numerical Methods, Database Management, Applied Machine Learning- Skills: C++, C, Python, OpenGL, Vulkan, GLES3, GLSL, HLSL, 3D Graphics, Unity, C#, CUDA, Machine Learning, Android Development, Databases, SQL, Artificial Intelligence, Go, Houdini, Jira, Jenkins, Maya, Kotlin		

EMPLOYMENT

Android Graphics Engineer	Twitch / Amazon	May 2021 – Dec. 2021
<ul style="list-style-type: none">- Contributed to the development of published Android mobile app with over 140 million active users- Owned creator tools that improved user experience developed with Dagger, RxJava, Kotlin, and Java- Pioneered system utilizing OpenGL ES rendering pipeline and GLSL shaders for rendering dynamic visuals- Developed automated unit tests for MVP architecture to maintain CI/CD with JUnit5 and Mockito		
Software Engineer	Intel Corporation	Oct. 2020 – May 2021
<ul style="list-style-type: none">- Analyzed system design using computer architecture knowledge to design validation tests in C and Python- Validated pre-silicon processor firmware configurations simulated on FPGA in Simics to hunt vulnerabilities- Developed scripts in Bash to streamline validation workflow in UNIX / LINUX environment		
Full-Stack Software Developer	University of Kentucky	May 2019 – July 2020
<ul style="list-style-type: none">- Created a data visualization web app for data analysis with Tableau, PHP, JavaScript, and SQL- Automated faculty job search process by using Python to parse new applicants, saving 2 hours daily- Revitalized DevOps with automated CI/CD using Git version control / GitLab and deploying code in Docker		

EXTRA-CURRICULAR / RESEARCH

Machine Learning Research Assistant	University of Kentucky	Jan. 2020 – Present
<ul style="list-style-type: none">- Developed convolutional neural networks with Tensorflow, Pytorch, NumPy, Pandas to detect part defects- Optimized processing with CUDA to handle high-resolution datasets and improve training time by 150%- Analyzing NASA CMAPSS dataset with predictive analysis using deep learning for machine health monitoring		
Biomedical Imaging Research Assistant	University of Kentucky	Mar. 2020 – Oct. 2020
<ul style="list-style-type: none">- Optimized open-source real time rendering data visualization software with parallel computing / CUDA- Optimized CMOS imaging device using CUDA and MATLAB GPGPU Toolbox to improve runtime by ~300%		

PERSONAL PROJECTS

Rendering Engine in Vulkan:
<ul style="list-style-type: none">- Created a real time rendering engine in OpenGL and C++ to interact with models and test various shaders- Managed the packaging and build automation of the entire system using CMake- Reimplemented the entire project in Vulkan for better control over the computer graphics pipeline- Profiled optimizations and performance using several tools such as RenderDoc, and NVIDIA Nsight

Physically Based Ray Tracer:

- Implemented Monte Carlo ray tracing rendering algorithm in **C++** that handles multiple **BDRF/BSDFs**
- Developed support for volumetric data utilizing a probabilistic approach to participating media
- Optimized the code base using several acceleration structures such as bounding volumes and **KD Trees**

3D Signed Distance Raymarching in Unity:

- Used High-Level Shading Language (**HLSL**) to create signed distance field shaders with **Unity** and **C#**

OPEN-SOURCE CONTRIBUTIONS

Blender Foundation:

- Used **C++** and **Boost Library** to implement precise methods for users to select elements randomly

Godot Game Engine:

- Fixed automatic generation of **GLSL** shaders in **C++** which caused visual error with normal mapping refractions