linkedin.com/in/brennen-green
www.brennengreen.dev

BRENNEN GREEN

+1 (859) 312-0852
brennengreen@outlook.com

EDUCATION

Lexington, KY	University of Kentucky	Expected: May 2023

- **Major:** Computer Science, Mathematics B.S. (GPA: 3.9)
- **Key Courses:** Linear Algebra, Advanced Computer Graphics, Probability, Systems Programming, Calculus 1-4, Programming in C, Artificial Intelligence, Algorithms and Data Structures, Statistics, Numerical Methods
- **Key Skills:** C, C++, Python, CUDA, Databases, Go, Graphics Programming, OpenGL, Artificial Intelligence and Machine Learning, JavaScript, Optimization, Imaging, Parallel Programming, Automation, Unity Game Engine

EMPLOYMENT

Engineering Intern	Twitch Interactive / Amazon	June 2021 – Aug. 2021

- Coming summer 2021!

Integration Engineering Co-op	Intel Corporation	Oct. 2020 – May 2021

- Wrote automated test simulations for the Simics platform in C and Python
- Debugged and validated various processor firmware configurations simulated via FPGA
- Used knowledge of computer architecture and systems programming to analyze the processor designs

Software Engineer	University of Kentucky	May 2019 – July 2020

- Improved faculty data comprehension by creating a data visualization web app in PHP, JavaScript, and SQL
- Automated faculty job search process by using Python to parse new applicants, saving 2 hours daily
- Integrated Docker into applications department wide while co-leading a project to revitalize department DevOps
- Integrated new code review automation and management system using version control and GitLab

EXTRA-CURRICULAR / RESEARCH

Embedded Systems Team	UK Solar Car Team	Aug 2019 – Present

- Helped with development of the embedded systems within the car such as RTOS, sensors, and microprocessors
- Contributed to the development of the real-time operating system and telemetry networking
- Helped maintain large scale SVN version control for the team on Linux

Smart Manufacturing Research Assistant	University of Kentucky	Jan. 2020 – May 2020

- Developed a convolutional neural network for part prognosis in additive manufacturing in Pytorch
- Wrote custom classes to handle large datasets with labelling and annotation for easy analysis
- Used CUDA acceleration to create fast and efficient models and datasets

Biomedical Imaging Research Assistant	University of Kentucky	Mar. 2020 – Oct. 2020

- Assisted with optimization of imaging device that renders real-time model of patient blood flow / hemodynamics
- Optimized computation time of imaging device by over 300% using CUDA GPU acceleration in MATLAB
- Developed a LSTM recurrent neural network in Pytorch that mapped cerebral blood flow to intercranial pressure

PERSONAL PROJECTS

Physically Based Renderer:
- Implemented a Monte Carlo based probabilistic path tracer in C++
- Optimized the path tracer using a bounding volume hierarchy acceleration structure
- Implemented an adjoint photon tracing algorithm to accurately model Rayleigh scattering

Rendering Engine in OpenGL Core Profile:
- Created a real time toy rendering engine to interact with models and test various shaders
- Wrote several aesthetically pleasing shaders in GLSL such as cell, gooch shading, and others
- Created real time visualizations of the Mandelbrot Set fractal, and other fractals

3D Signed Distance Raymarching in Unity:
- Used High-Level Shading Language (HLSL) to create signed distance field shaders
- Created a robust and efficient graphics pipeline using Unity's Shader Framework and C#

GoList (Craigslist Web Scraper in Go): https://github.com/brennengreen/golist
- Implemented a web scraper that scrapes posting data from a craigslist category
- Used Go's PostgreSQL implementation to categorize all postings in a SQL database
- Maintained an active server for utilizing the web scraper and database using Heroku