Lonnie L. Souder II
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PROFESSIONAL EXPERIENCE

Algorithm Developer   2019-present
Toyon Research Corporation
- Analyze existing computer vision code for bottlenecks using nvprof, Nvidia NSight, and VS Performance Profiler
- Implement parallelized algorithms in CUDA to run on the GPU
- Package software for delivery to client using Docker and CPack
- Maintain and update CI scripts and configuration files

XR Software Developer   2018-2019
Rowan Virtual Reality Lab
- Wrote code to consume REST API in C#
- Handled compatibility issues for multiple devices during development
- Wrote code for custom world-space GUI element interaction for Oculus Go

Software Engineering Intern   Summer 2017 & 2018
OPEX Corporation
- Added graphics features to dialogs and worked to fix graphic bugs using MFC libraries in C++
- Worked on build scripts to be used with Jenkins and made changes to better integrate Plastic SCM into Jenkins
- 2D graphic rendering optimization; Increased performance by 80% using Visual Studio Performance Profiler

SKILLS

C# • F# • Python • Javascript • C++ • C • Flask • Sqlite • NGINX • React • Docker • Docker-Compose • Plastic SCM • Git • Continuous Integration
Machine Learning • CMake • Bash • Linux • CUDA • OpenGL • Verilog • Embedded Systems • Unity3D • VR • FMOD

COMMUNITY OUTREACH

Exercism.io   Ongoing
- Mentor for C++ and F# language tracks
- Occasional open-source contributor

PROJECTS & RESEARCH (*All projects are available on GitHub*)

Url Shortener Web App   Fall 2020
Personal Project
> This was just a small project for practicing some backend web skills using Python, Flask, NGINX, SQLite, React, and Docker. The homepage is a simple form where you can input a long url. When you submit the form, the long url is assigned a short tag which is saved in a database alongside the original url. Afterwards, /short/<tag> will redirect to the long url. The concept is similar to Bitly or TinyURL. The entire project is set up to run with docker-compose, so everything should be very portable, scalable, and easy to use.

VR Iron Man Simulator in Unity3D   Fall 2018
Introduction to Virtual Reality
> For my final project, I created a small VR game for the Oculus Rift in Unity3D. In this game, the player takes on the role of an *Iron Man*-esque hero. The player is able to fly and shoot lasers and missiles to defeat waves of enemy aircraft. Notable accomplishments on this project include writing the aircraft AI pathfinding algorithm implemented as a PID steering system, writing player input handling, writing missile behavior, and implementing 3D sound using FMOD. I also modeled and textured the player's hands, the missiles, and the player's home base.

Playground Engine: A C++ and OpenGL Game Engine   Ongoing
Personal Project
> This small game engine was born from scraps of code I wrote while learning OpenGL. Eventually, I gathered together some of the pieces into useful abstractions such as Models, Shaders, Cameras, Meshes, and SceneNodes for building a scene graph. The project uses CMake for cross platform building, CTest for testing, Travis CI for automated builds and testing, and Codecov for test metrics.

EDUCATION

BS Electrical & Computer Engineering   2015-2019
Rowan University, GPA: 3.685
Relevant Coursework

Computer Networks	Introduction to Virtual Reality
Principles of Data Structures	Game Audio
Advanced Embedded Software	Very Large Scale Integration Design
Computer Architecture	Intro to Memristors & Nanoelectronic VLSI

Institute of Electrical and Electronics Engineers (IEEE), Rowan University Student Branch   2015-2019
- 2015 Rowan Sumo Robotics Champion
- 2016 Sumo Robotics Competition Planning Committee

Rowan Scholars Program Scholarship Recipient   2015-2019