Benjamin Graham

Carnegie Mellon Electrical and Computer Engineering
Class of 2022

Experience

2020 — **Software Engineering Intern**
RedHat
- Worked on the Cockpit Session Recording module to provide a web interface for the tlog application. The interface was updated to use the React library for PatterFly 4, and the repository was updated to use continuous integration using Docker.
- Updated the authentication application FreeOTP to support backup and restore features on Android.

2019 — **Undergraduate Research Assistant**
Cylab Security and Privacy Institute
- Worked with Northrup Grumman on the development of visualization tools to detect and monitor the distribution of malicious software.
- Implemented a augmented reality haptic system for first responders for the NIST haptic challenge. The entry received first place in the NIST Haptic Interface for Public Safety Challenge.
- Developed a web application to graphically model the behavior of artificial intelligence algorithms.

2018 — **CERT Security Automation Intern**
Software Engineering Institute
- Used Python and Angular for web application development for simplified SiLK internet traffic analysis.

2015 - 2017 — **Software Intern**
Carnegie Mellon Robotics Institute
- Wrote software using Swift and Metal for displaying interactive 3D data on mobile devices under the supervision of Professor Simon Lucey.
- Wrote Python and Matlab code for use in a 3D image camera calibration system under the supervision of Professor Fernando De la Torre.
- Designed, 3D printed, and assembled a robot under the supervision of Professor Alonzo Kelly.

Projects

2020 - present — **C Compiler**
- Developing a C compiler for CMU's Compiler Design course, written in Ocaml.

2020 - present — **X Window Manager**
- Made a functional tiling window manager for the X Window System.

2019 - present — **Python AOT Compiler**
- Developing a compiler and runtime environment for Python to improve its speed and memory usage.

2019 — **Com-Unity Web Application**
- Created a inter-dorm request application for SteelHacks using Node.js.
- Won Snapchat prize for best social media integration.

2018 — **PyDoom Video Game**
- Developed a 90's style first person video game inspired by the likes of Doom and Quake.
- Won first prize overall at the 15-112 Project Showcase.

2017 — **Kathode Android Game**
- Released a rhythm-based video game on the Google Play Store.
- Developed using Java and Android Studio.

Education

2018 - present — **Carnegie Mellon University**
- Student in Electrical and Computer Engineering.
- Relevant courses include *Compiler Design - Distributed Systems - Parallel and Sequential Data Structures and Algorithms - Introduction to Computer Security - Software Engineering for Startups - Introduction to Computer Systems - Structure and Design of Digital Systems - Functional Programming -*

About

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Awards

- RedHat "Achievement of Awesome"
- First place in the NIST Haptic Interface for Public Safety Challenge
- Snapchat Prize for Social Media Inegration at SteelHacks
- 15-122 Project Showcase winner
- First prize at Hack112
- Duquesne Award for Computer Science at PJAS

Skills

Languages

- C
- C++
- Python
- Ocaml
- Javascript
- Java
- x86 Assembly

Libraries and Frameworks

- React
- Node.js
- OpenGL
- OpenCV
- Unreal Engine
- Angular

Platforms

- Linux
- Windows
- Android
- IOS
- Raspberry Pi
- Arduino
- HTC Vive

Software

- Git
- Android Studio
- Fusion 360