

# Benjamin W. 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 an 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

### Email

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### LinkedIn

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### GitHub

github.com/benwilliamgraham



## Awards

- RedHat "Achievement of Awesome"
- First place in the NIST Haptic Interface for Public Safety Challenge
- Snapchat Prize for Social Media Integration 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