Benjamin W. Graham

Software Engineer

🌐 Experience

2021 - 2023

Software Engineer
Bodo Inc.
- Compiler engineer for a high-performance data processing platform.
- Lead for multiple sprint epics involving core functionality.
- Engineering mentor for two interns and one full-time software engineer.

2019 - 2021

CEO
Moonpy Inc.
- Developed a high-performance Python distribution using an LLVM backend.
- Winner of the 2021 McGinnis Venture Competition.

2020

Software Engineering Intern
RedHat
- Updated the Cockpit Session Recording module to provide a web interface for the tlog application. The interface was moved to the React library for PatterFly 4, and continuous integration was added to the repository using Docker.
- Implemented backup-and-restore functionality for the authentication application FreeOTP on Android.

2019

Undergraduate Research Assistant
Cylab Security and Privacy Institute
- Built a visualization tool to detect and monitor the distribution of malicious software in a partnership with Northrup Grumman.
- 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.

2015 - 2017

Software Intern
Carnegie Mellon University
- Used Python and Angular for web application development for simplified SiLK internet traffic analysis at the Software Engineering 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

2021 - present

LLVM IR Parser for Tree-sitter
- Maintainer for Tree-sitter's LLVM parser and highlighting module.

2021 - present

Chess Engine
- Programmed a 1900-rated chess engine from scratch.

2020 - present

X Window Manager
- Made a functional tiling window manager for the X Window System.

2020

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

2019

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

🎓 Education

2018 - 2021

Carnegie Mellon University
- Studied 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*

ℹ️ About

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Github
github.com/benwilliamgraham

Interests
Coding - Mechanical Keyboards - 3d-Printing - Semiprime Factorization

🏅 Awards

- McGinnis Venture Competition winner
- RedHat "Achievement of Awesome"
- First place in the NIST Haptic Interface for Public Safety Challenge
- Snapchat Prize for Social Media Integration at SteelHacks
- 15-112 Project Showcase winner
- First prize at Hack112
- Duquesne Award for Computer Science at PJAS

⚒️ Skills

Programming Languages

- C
- C++
- Python
- Rust
- Javascript
- Java
- Ocaml
- Go

Libraries, Frameworks, and Toolchains

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

Platforms

- Linux
- Windows
- Android
- IOS

Software

- Git
- Android Studio