

Benjamin W. Graham

Software Engineer



Experience

2021 -
2023

Software Engineer

Bodo Inc.

- Compiler engineer for a high-performance data processing platform. Focused on the Numba-based LLVM backend and adding support for new types and operations.
- Lead for multiple sprint epics involving core functionality, including multiple urgent bug fixes and features.
- Engineering mentor for two interns and one full-time software engineer. Both interns now hold full-time positions at the company.
- Represented Bodo at the 2022 Snowflake Convention.
- Handled multiple major and minor public releases.
- Dedicated Bodo representative at weekly Numba planning meetings.

2019 -
2021

Founder and CEO

Moonpy Inc.

- Developed a high-performance Python distribution using an LLVM backend.
- Winner of the 2021 McGinnis Venture Competition.
- Received multiple VC offers before entering IP deal with Bodo Inc.
- Accepted into Carnegie Mellon's *Swartz Center for Entrepreneurship* as a CMU Associate.

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.

2015 -
2019

Software Intern

Carnegie Mellon University

- 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 under the supervision of Professor Yang Cai.
- 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

2022 -
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

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*



About

Email

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Github

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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
	OpenGL
	OpenCV
	NVIDIA Omniverse
	Emscripten
	React
	Node.js
	Angular
	Unreal Engine

Platforms

	Linux
	Windows
	Android
	iOS

Software

	Git
	Android Studio