

# Benjamin W. Graham

Software Engineer



## Experience

2021 -  
2023

### Software Engineer Level 2

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.

2019

### Software Engineering Intern

Red Hat Inc.

- 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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### Website

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### LinkedIn

linkedin.com/in/benwilliamgraham

### Github

github.com/benwilliamgraham

### Interests

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



## Awards

- McGinnis Venture Competition winner
- Red Hat "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