

Caleb Xavier Berger

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Skills Rust, Python, Linux, Java

Education Computer Science student at Purdue University West Lafayette (May 2023)

Professional Experience

- Cisco Systems** *Technical Undergraduate co-op* May – Nov. 2021
Assisted in migrating application from GCC to LLVM-based Clang compiler. Enabled parallel builds within large Make build system. Greatly reduced size of Linux boot executable used by diagnostics application.
Technologies: *C, Make, Linux, LLVM, GCC*
- State Farm** *Property & Casualty Actuarial Technology Intern* May 2020 – April 2021
Developed HTTP API for data access as part of modernization effort. Automated deployment of packages to internal Maven repository and deployment of services to on-premises Kubernetes clusters. Refactored existing application to better utilize SageMaker cloud platform.
Technologies: *Java, Spring, Kubernetes, Python, Amazon SageMaker*
- Ford/Purdue Partnership** *Test Engineer* Aug. 2019 – May 2020
Helped prototype new product utilizing natural language processing to help consumers use and understand their car's owner's manual.
Technologies: *Python, BERT, TensorFlow*
- Indiana University** *Research Intern* Feb. – Aug. 2019
Led redesign of large Python script into maintainable, extensible program. Designed and built graphical front-end for electrocardiogram study. Assisted with data processing and acquisition for research projects. Instructed lab team in use of widespread source-control system `git`.
Technologies: *Python, Open CV, Qt 5*
- The Quadrangles FRC Team 3494** *Lead Programmer* Jan. 2016 – May 2019
Created custom video streaming program (`potential-engine`) in 2019 to reduce bandwidth use. Led all robot programming from 2017 to 2019, including training new programmers.
Technologies: *Java, C++, Gradle, Linux*
- Bloomington Bicycle Club** *Jr. Web Developer* Jan. 2016 – Dec. 2018
Helped maintain Wordpress site for large annual event (Ride Across Indiana, or RAIN), including adding new elements not found in "stock" Wordpress.
Technologies: *HTML, CSS, Javascript*

Projects Led

- Spencer Clinic Subject Interface** July 2019
Graphical user interface for collecting subject ECG data in a semi-public setting, while keeping personal information protected with proven cryptosystems.
Technologies: *Python, Qt 5*
- potential-engine** Jan. – June 2019
C++ program to stream video from a robot to its operator in real-time using inexpensive hardware. In some cases, `potential-engine` reduced bandwidth consumed by stream to a third of amount used by de facto solution in the *FIRST* Robotics Competition ecosystem.
Technologies: *Raspberry Pi, C++, GStreamer, OpenMAX*

Personal Work

boiler.social

Jan. 2021 – Current

A service providing access to the federated, end-to-end encrypted instant messaging protocol Matrix, aimed at other students of Purdue.

Technologies: *Linux, Kubernetes, Matrix, Synapse*

Heighliner

Nov. – Dec 2021

Set of tools for booting and managing a Linux system, including an init system and daemon manager.

Technologies: *Rust, Linux, Tokio*

blagger

May – Jul 2020

A simple static site generator written in Rust.

Technologies: *Rust*

Lopez

Apr. 2018 – Nov. 2019

Discord bot providing services for community administration and entertainment.

Technologies: *Python, PostgreSQL*

Recognition

FRC Innovation in Controls Award - Tippecanoe Event

2019

FRC Innovation in Controls Award - Center Grove Event

2019

FRC Excellence in Engineering Award - State Championship

2019

FRC Dean's List Semifinalist

2018

Eagle Scout

March 2017