Jack Boreczky

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Education

University of California, Berkeley — Berkeley, CA
Bachelor of Science, Electrical Engineering and Computer Sciences; — Aug 2019 – May 2021
Regents' and Chancellor's Scholar; GPA: 4.00/4.00

Professional Experience

Algorithms for Computing and Education Lab — Berkeley, CA
Undergraduate Researcher — Nov 2019 - May 2021

- Created a working JavaScript prototype of a new problem type for upper division CS classes designed to provide scaffolding for learning how to modify complex codebases; Developed problem concept through literature review and interviews with instructors; Conducted 3 user studies with students to guide iteration on UI and problem content.
- Authored exam questions with content randomization and fully automatic grading for use with the UIUC PrairieLearn computer-based testing platform; Worked in small faculty led team with weekly stand-ups.
- Developed Python web service for anonymization and synchronization of student coursework data to assist in analysis of course learning goals; Deployed web service using Heroku and PostgreSQL database.

Piper Inc. — San Francisco, CA
Software Engineering Consultant — Jul 2018 - Aug 2020

Provided software engineering support for Raspberry Pi based educational computer kit; Worked with a team of developers to update and improve the existing Python codebase, resulting in a performance improvement by a factor of 5; Developed an update deployment server using Docker and AWS for OTA updates to thousands of computer kits; Designed and implemented three game levels incorporating additional hardware sensors for a new product release.

Projects

Kernel improvements to PintOS: C-based instructional OS
Added a range of functionality in C to a bare bones OS in a group of 4 students; Created system calls for reading, writing, and running user created files; Implemented a priority scheduling system for user threads; Added support for large user files and directories with an index based file system and LRU cache for disk operations.

End-to-End encrypted file sharing system
Worked in a team of 2 students to develop a multi-user stateless system in Golang to store encrypted and authenticated files, supporting storing, deleting, sharing, revoking access, and efficient appending; Wrote over 2000 lines of application and testing code; System passed a range of both hidden and public adversarial attacks.

Attirely: A peer-to-peer clothes donation app for Android
Project manager and front-end developer for a team of 5 students; Led team meetings, gave presentations, coordinated development and art asset creation; Completed a functional prototype in Java with Android Studio, using Firebase and Google's Cloud Vision API.

Skills

Languages: Python, Java, C, RISC-V Assembly, JavaScript, HTML & CSS

Areas of study: Data Structures, Database Systems, UI/UX Design, Computer Security, Operating Systems

Extracurricular Activities

4-H Youth Development Program Member and Leader
14 years as a member in local 4-H club. Active adult leader of 4 years, teaching programming and STEM skills to youth members; Classes include Engineering and Physics with building toys, electronics with Arduino, and Python and web development.