Brendan Benner

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https://brendanbenner.ml
https://github.com/bbenner7635

EDUCATION

University of California, Berkeley (August 2019 - May 2023)
B.A. in Computer Science & Applied Mathematics, Double Major
GPA: 3.832

RELEVANT COURSEWORK

- Data Structures (Java, JUnit)
- Computer Programs (Python, Scheme, SQL)
- Database Systems (SQL, Java, MongoDB)
- Designing Information Devices and Systems (Jupyter iPython Notebook)
- Operating Systems & System Programming (C)
- Computer Security (C, Go)
- Computer Architecture (C, C++)
- Digital Design & Integrated Circuits (Verilog)
- Machine Structures (RISC-V, C)

SKILLS

Programming: Python, Java, JavaScript, Typescript, SQL, MongoDB, C, Assembly, Verilog, HTML/CSS
Technologies: Git, CI/CD Pipelines, NodeJS, React, Unix, Computer Architecture, RISC-V & x86 ISAs

WORK EXPERIENCE

Software Development Engineer Intern -*Amazon Web Services (AWS) CloudTrail*
May 2022 - August 2022

- In Python and TypeScript built a cloud service processing hundreds of thousands of API calls/day
- Collaborated with team of engineers to perform same responsibilities as a full-time engineer, including daily standups, sprint start/retro meetings, and code reviews

Software Engineer Intern - *Intensivate*
December 2020 - April 2022

- Lead development on a GUI to generate Chisel HDL to visually interface with Berkeley's Rocket Chip
- Used knowledge of computer architecture, Chisel, and JavaScript to write in-browser GUI
- Translated Rocket Chip codebase to be compatible with GUI for designing new commercial chip

Research Assistant - *SLICE Lab, UC Berkeley*
August 2021 - Current

- Designed benchmarks in RISC-V for testing SLICE Lab's new RISC-V accelerated core
- Assessed performance of new core by applying kernel core and floating point optimizations in C
- Worked with graduate students in the SLICE Lab as part of a graduate-level project

LEADERSHIP

Discussion & Lab Assistant - *Electrical Engineering & Computer Science Department, UC Berkeley*
January 2021 - May 2022 https://eecs16b.org

- Taught low-level circuitry & linear algebra to students in lab and office hours for eight hours/week
- Graded hundreds of students' exam questions twice per semester, advised students in writing potential exam questions

Vice President of Industrial Relations - *Computer Science Undergraduate Association*
December 2020 - December 2021 https://csua.org

- Co-lead UC Berkeley's largest and oldest computer science undergraduate organization by hosting in-person and remote events, communicating with corporate partners, and holding office hours
- Led UC Berkeley's Global Startup Fair for one year, connecting 1,000+ students with 40+ companies

Ecode Project Lead - *Cool Campus Challenge*
August 2021 - December 2021 https://www.coolcampuschallenge.org

- Led a team to design and integrate an interactive pledges system for the Cool Campus Challenge site that will be used by thousands of users across multiple University of California campuses
- Created a group and sort system for user challenges with React and React Redux

PROJECTS

100MHz 5-Stage RISC-V CPU

- Designed and implemented a 5-stage RISC-V CPU with 100MHz clock frequency, a BIOS, and UART in Verilog HDL, targeting the Zynq 7000-series FPGA and supporting the RV32I Base Instruction Set
- Used knowledge of computer architecture and RTL design to resolve hazards and optimize performance with tournament-style branch prediction based on the ALPHA 21264 microprocessor

PintOS

- Built an fully functional operating system in C
- Implemented support for floating point instructions, scheduling, multithreading, and a filesystem