


# Joe Broder

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## Summary

Experience securing both device firmware and web applications. Strong full-stack MERN, C/C++, python, and blockchain application development skills.

## Education

### University of California, Berkeley | Senior

B.S. Electrical Engineering and Computer Science (EECS),  
College of Engineering

## Coursework

**CS61A**- Structure and Interpretation of Programs  
**CS61B**- Data Structures  
**CS61C**- Machine Structures  
**CS70**- Discrete Math  
**CS100**- Data Science  
**CS161**- Computer Security  
**CS162**- Operating Systems  
**CS170**- Efficient Algorithms  
**CS188**- Artificial Intelligence

## Skills

### Technologies:

Security • Full Stack Web •  
REST API • Ethereum • Systems

### Languages:

Python • C • JavaScript • HTML  
• CSS • Solidity • RISC-V • x86 •

### Tools:

MERN • React.js • Express.js •  
Flask • SQL • Git • Numpy •  
Pandas • Ganache • Truffle • Qt  
• Bootstrap • GDB • Mbedtls

## Experience

### Intel Corporation

June 2020 ~ Present

*Firmware Security Engineering Intern, Nonvolatile Memory Division*

- Worked directly for the firmware security architecture team
- Prototyped next-gen platform security features for future SSD products
- Implemented new certificate generation and storage scheme
- Refactored and ported legacy features to work on next-gen hardware
- Replaced obsolete device authentication protocols with extensible, robust, and industry standard ones relying on public key cryptography
- All code is now used as reference material by production engineers

### Berkeley Blockchain Xcelerator

January 2020 ~ October 2020

*Blockchain Xcelerator Fellow*

- Worked with UC Berkeley startup incubator to assist portfolio companies
- Performed due diligence and technical evaluation on over 20 blockchain and security startups which resulted in the 2020 cohort selection
- Provided portfolio companies with guidance on blockchain architecture and strategy to assist them in accelerating MVP development timeframe

### Blockchain at Berkeley

January 2019 ~ Present

*Technical Consultant / Chief of Staff*

- Completed security audit of cryptocurrency lending platform discovering critical issues regarding the use of blockchain APIs
- Built proof of concept for an Ethereum-based publishing platform for academic papers with a token incentive mechanism
- Designed, developed, and tested ERC20 token with staking functionality along with additional smart contracts using Solidity, Truffle, and Ganache

### ExtraTech Systems

Summers 2014 & 2018

*Software Engineering Intern*

- Developed a cross platform mobile client to monitor factory CNC machines as part of an IoT software suite for manufacturers
- Built a responsive web UI for monitoring robotic motor controllers

### Blue Marble

Winter 2017 & 2018

*Software Engineering Intern*

- Developed operational prototype of web-based platform allowing non-programmers to code and publish Amazon Alexa skills
- Designed and built RESTful services in Flask that generated all Python code and JSON needed for submission of skills to the Alexa app store

## Selected Personal Projects

### Jorum

*A full-stack application template and rich-text forum*

- Built with React, Flask, SQLAlchemy and Bootstrap. Features JWT authentication, email verification, admin panels, and image uploads.

### Mango Reader

*Desktop Kindle-like reader for Japanese Manga comics*

- Built in C++ with Qt, features include a thumbnail gallery, saving books, and image zoom with kinetic scrolling