# Benjamin Carlson

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## EDUCATION

**UC BERKELEY** | Berkeley, CA
Electrical Engineering and Computer Science, B.S.
Expected Graduation: May 2020
Academic GPA: 3.71

## COURSEWORK

### CURRENT

Operating Systems
Internet Architecture & Protocols
Database Systems

### COMPLETED

Computer Security
Artificial Intelligence
Principles & Techniques of Data Science
Computer Architecture
Efficient Algorithms & Intractable Problems
Data Structures
Discrete Mathematics & Probability
Information Devices & Systems I, II

## SKILLS

### PROGRAMMING

Java • Python • LaTeX • Android • C • SQL • HTML

### TECHNOLOGY

Git • Eclipse • IntelliJ • Android Studio • IPython Notebook • Google Firebase • Sublime Text • Overleaf • Pandas

## AWARDS

$2^{nd}$ Place - CSPA Tech Competition @ UC Berkeley

## INTERESTS

Programming (HackerRank, LeetCode, Google Code Jam) • Teaching • Dance • Video Games • Basketball

## LINKS

https://github.com/bencarlson01
https://linkedin.com/in/bcarlson01

## INDUSTRY EXPERIENCE

**THE BOEING COMPANY** | Software Engineering Intern
June 2015 – August 2015 | Huntington Beach, CA

- Developed the Java backend for an object collision tester which received sensor inputs for moving shapes and efficiently detected all collisions.
- Created a Python script which converted HTML webpages to MHTML files, a website archive format.
- Worked with a team of 8 to organize, supply, cater, and advertise for an internship fair for over 60 interns and 300 visitors.

## EXTRACURRICULAR EXPERIENCE

**UC BERKELEY** | CS61B Academic Intern
August 2017 – Present | Berkeley, CA

- Work with students during labs and office hours to teach them programming and debugging techniques.
- Tutor students with challenging material, algorithms, and data structures.

**UC BERKELEY** | EE16B Tutor
August 2017 – Present | Berkeley, CA

- Help a lab of 40 students with building and debugging breadboard circuits.
- Explain the concepts and practical applications of these circuits to students.

## RELEVANT PROJECTS

**OBJECT COLLISION TESTER** - Interactive GUI for 3-D Objects

- Used algorithms including oriented bounding box trees and separating axis theorem to optimize the backend for immediate and accurate responses.
- As the sole backend programmer on a team of 6, I catered my design to their needs and worked with their interactive GUI to visualize and test my code.

**MEMER** - Tinder for Memes

- Android application that allows users to upload images and like/dislike and comment on other user's images through a tasteful GUI.
- Uses Google Firebase for a 24/7 backend server that supports user authentication, user data management, and image storage.

**BESTRIS** - Self Developed Tetris

- Fully functioning Tetris game developed in Java that utilizes object oriented programming for efficiency and smooth gameplay.

**BEARMAPS** - Interactive Map of Berkeley, CA

- Includes scaling, pathfinding, searching, and autocompletion features.
- Implemented using QuadTrees, the A* shortest paths algorithm, and Tries.

**SQL DATABASE** - Database Management System

- Developed a domain specific language that supported all of the core functionalities of SQL to allow interaction with the database.
- Designed a line-by-line interpreter for command inputs.
- Saved data tables on disk for persistent storage and use over many sessions.