Matthew Jeng

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EDUCATION

University of California, Berkeley *Expected Graduation: May 2020*
B.S. Electrical Engineering and Computer Science *GPA: 3.9 / 4.0*
(Relevant Coursework)

- The Structure and Interpretation of Computer Programs
- Data Structures and Algorithms
- Designing Information Devices and Systems
- Discrete Mathematics and Probability
- Linear Algebra and Differential Equations
- Efficient Algorithms and Intractable Problems

PROJECTS

Jukebox Control System *February 2017 – April 2017*

- Constructed from scratch a jukebox that could play music from a customizable playlist preloaded on the memory card of a Raspberry Pi or using a Bluetooth/AUX connection to compatible devices implemented using Python on the RPi
- Acted as the project lead, coming up with the overall design then compartmentalizing the work and assigning teams
- Programmed the built-in music functionality on the Raspberry Pi and patterns into the jukebox's lights using an Arduino
- Designed and put together all the physical controls (buttons, switches) and internal circuitry used in the project
- Established the hardware-software connections between the physical controls, circuitry, Raspberry Pi, and Arduino

Bear Maps *April 2017*

- Developed a small-scale version of Google Maps for the Bay Area, including zoom and route-mapping functionalities
- Parsed XML data files to retrieve location information used to autocomplete user input and tag specified locations
- Rendered map image tiles efficiently in correspondence with user input queries, minimizing lag for zoom in/out functions

Database Management System *February 2017*

- Developed a small-scale relational database management system similar to SQL, queried using domain specific language
- Used Java to design database implementation, leveraging different packages to parse user input and query database
- Utilized test-driven development using JUnit to refactor code for efficiency and to ensure working progress

Scheme Interpreter *November 2016*

- Built an interpreter for Scheme, a functional programming language and a dialect of LISP, using Python
- Implemented arithmetic operations, string manipulation, function calling, special forms, and tail-recursion

WORK EXPERIENCE

CS 61A Undergraduate Student Instructor (TA) *August 2017 – present*

- Teach a lab and discussion of 35 students and perform miscellaneous duties like advising, tutoring, and content review
- Partake in weekly meetings to assess and adjust the course to fit student needs and to improve it for future semesters

CS 61A Group Tutor *June 2017 – August 2017*

- Mentored three biweekly sections of 4-6 students and did one-on-one tutoring for Berkeley's introductory CS class
- Guest lectured the class of 400 students on the structure of Scheme, one of the three major languages used in the class

Schlumberger Internship *January 2017*

- Programmed and developed operating procedures for an instrument used in the assembly of a proprietary product
- Contacted prospective partners of Schlumberger regarding the automation of common assembly-line procedures

Eye Level *June 2016 – August 2016*

- Taught math and english five days a week to 15 children ranging from ages 5 to 13
- Graded students' quizzes yielding an average 20% improvement in quiz score from the start to the end of the program

SKILLS

- **Programming Experience** – Python, Java, Scheme, SQL, HTML/CSS
- **Languages** – English, Chinese (Mandarin)

LEADERSHIP

Whippany Park Math Team Captain *September 2013 – June 2016*

- Founded the team with 15 starting members, and eventually grew the team to over 40 members over three years
- Contacted organizations that offered math competitions such as the Mathematical Association of America (AMC), Lehigh University, Seton Hall University, and Purple Comet in order to add my team to their participant rosters