

## Luke Swallow

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### EDUCATION

[UC Berkeley] [Berkeley], [CA/US]

BA in Computer Science/Technical GPA:3.7 Expected [June 2022]

**Relevant Coursework:** [CS61a Structure and Interpretation of computer programs, CS61b Data Structures, CS70 Discrete Math and Probability Theory, CS61c Machine Structures, CS170 Efficient Algorithms and Intractable Problems, In progress: CS162 Operating Systems, CS161 security]

### TECHNICAL SKILLS

**Programming Languages:** Python, Java, C, SQL, RISC-V

### WORK EXPERIENCE

[Leadership Initiatives] [Manhattan Beach], [CA/US]

[Project Leader] [September 2016] – [January 2018]

- Worked as a project leader for a small team paired with a welding shop in Nigeria.
  - developed and implemented fundraising campaign, resulted in fundraising over \$2000 dollars.
  - led design obstacles solutions team
    - connected Nigerian business with a local welding shop in my area to help create innovative solutions to overcome technical barriers and refine techniques. He now can make electronic gates and has saved over \$1000 dollars on supplies since adopting new methods.

[Laimun XXIII] [Manhattan Beach], [CA/US]

[Head Chair of advanced FAO and assistant head of Tech] [June 2017] – [December 2017]

- Helped build and design Laimun webpage, as well as deal with any tech solutions that came up during Laimun conference.

**Projects:** *google docs links are snippets of code, I am not allowed to post class code*

**BearMaps:** Built a web application that implements shortest path algorithms to find quickest route to nearby locations and implements an autocomplete feature. This project was used to teach about different kind of path finding algorithms such as Dijkstra's and A star, as well as different data structures such as tries, and maps.

<https://docs.google.com/document/d/1WuAYW8YxtdYoUY1FCeyDAPBeSPjmFKlCyS68JBkbaQU/edit?usp=sharing>

**BuildYourOwnWorld:** Built a randomly generating world, and randomly generating new levels of increasing difficulty. The monsters use Dijkstra's to continually chase the avatar, and the players goal is to survive for as long as possible. Project involved building a gui, implementing save operations, and utilizing efficient data structures.

[https://docs.google.com/document/d/1UgQd50IpOHggNp6TWHf4RZw\\_CSLE3ju8iaTawJimdt8/edit?usp=sharing](https://docs.google.com/document/d/1UgQd50IpOHggNp6TWHf4RZw_CSLE3ju8iaTawJimdt8/edit?usp=sharing)

**CS61Classify:** Working on building an artificial neural net in assembly that can detect and classify handwritten digits.

**OptimalMultimodalTADropoff:** worked in a group to develop an efficient algorithm which finds the optimal route for dropping off multiple tas with one driver, and the ability for the tas to walk. We used a reduction to tsp and google-or tools to solve.

**Scheme Interpreter:** In this project I built an interpreter for a subset of the scheme language in python.

<https://docs.google.com/document/d/1iwx6pHUYN4NDRIs9wA88ceGknIoDSH7xU5Q5Od3aDVU/edit?usp=sharing>

**Yelp Maps:** In this class project, I created a Voronoi diagram visualization of restaurant ratings using machine learning and the Yelp academic dataset. In this visualization, Berkeley is segmented into regions, where each region is shaded by the predicted rating of the closest restaurant.

**Pintos:** working towards building a bootable operating system, for my operating systems class.