

# Michael Zeng

Last update on September 24, 2019

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## Education

University of California, Berkeley

BERKELEY, CA

B.A. (Computer Science) • GPA: 3.8/4.0

Expected graduation: May 2021 • August 2017 – present

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## Experience

Friendly Robots Co.

BERKELEY, CA

Software Engineering Intern

June 2019 – August 2019

- Developed Python navigation backend designed to identify the most optimal vacuuming path for an autonomous robotic vacuum cleaner
  - Integrated Google Cartographer SLAM with a LiDAR laser scanner in Robot Operating System (ROS)
  - Integrated computer vision through a ZED stereo camera to allow the robot to detect and avoid obstacles while driving autonomously, using the ROS package zed-ros-wrapper
  - Designed and deployed a website hosted on an AWS Elastic Compute instance which allows the user to teleoperate the robotic vacuum cleaner remotely through the Internet based on sensor and camera information
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## Projects

HoldemSim

Languages: Python (Django), HTML/CSS • <https://github.com/mzeng7/holdem-sim>

May 2019 – present

A full-stack web application written using the Django web framework for the poker game of Texas hold'em that allows the user to simulate games and analyze strategy

- Designed objects to store and compare different poker hands efficiently
- Developed an algorithm that applies the rules of Texas hold'em to determine the winning hand once the action in a round is complete, given all cards available
- Implemented a web interface that allows users to create accounts and maintain profiles

Simplified C compiler

Languages: C, RISC-V

January 2019 – March 2019

A compiler for a simplified version of the C language which translates high-level C code into assembly code

- Implemented a lexer which takes the C code and converts them into tokens for various syntactic structures, discarding comments and excess whitespace
- Developed a parser which arranges the tokens into an abstract syntax tree (AST), which defines the structure of the program in terms of the lexed tokens, supporting if/else statements, for loops, call expressions, function declarations, variable declarations, binary expressions, literals, return statements, and others
- Developed a code generation program which converts the AST into RISC-V assembly code that can be run immediately on a RISC-V processor

Amazons

Languages: Java

October 2018 – November 2018

A strategy game played on a chess board where each player has four queens that can move like queens in chess and can throw spears that block the path of other queens

- Designed and deployed an efficient AI player by implementing a minimax algorithm on a game tree, where the heuristic is the difference between the number of legal moves remaining for each player
  - Implemented the core game structures and objects, such as the board, players, moves, and pieces, applying the rules of the game programmatically
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## Volunteer Work

Cal Fencing Club

Vice President

August 2017 – present

- Led the officer team, was responsible for team communications using the mass-message delivery tool MailChimp, and managed a budget of \$20,000 which we use for travel to competitions and equipment
  - Managed the website [fencing.berkeley.edu](http://fencing.berkeley.edu), which facilitated the annual recruitment of at least 25 new fencers through advertising, scheduling, and contact information, designed with Bootstrap CSS/JavaScript
  - Certified referee for the United States Fencing Association
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## Skills and Interests

Technical Skills: Python, Java, C, HTML/CSS, JavaScript, GoLang, Git, Django web framework

Natural Languages: English (*native*), German (*proficient*), Mandarin Chinese (*conversational*).

Interests: Fencing (attended nationals 4x), Wikipedia (administrator), Texas hold'em poker