Michael Zeng

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Education

University of California, Berkeley — Berkeley, CA

B.A. (Computer Science) • **GPA:** 3.722/4.0 *Expected graduation: May 2021* • *August 2017 – present*

Relevant coursework: Data Structures, Machine Structures, Algorithms, Artificial Intelligence

In progress: Computer Security, Internet/Networking

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

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

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, 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

Skills and Interests

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

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

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