Michael Zeng

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Education

University of California, Berkeley — Berkeley, CA
B.A. (Computer Science) • **GPA:** 3.79/4 — *Expected graduation: May 2021* • *August 2017 – present*

Experience

Friendly Robots Co. — Berkeley, CA
Software Engineering Intern — *June 2019 – present*

- Implemented path planning algorithm in Python designed to identify the most optimal vacuuming path for fully autonomous robotic vacuum cleaner given 2D map information generated from a laser scanner
- Integrated computer vision through a stereo camera in Robot Operating System (ROS) to allow the robot to detect and avoid obstacles while driving autonomously
- Designed and deployed a website hosted on AWS cloud infrastructure which allows the user to teleoperate the robotic vacuum cleaner remotely through the Internet based on sensor and camera information

Projects

HoldemSim
Languages: Python 3 • https://github.com/mzeng7/holdem-sim — *May 2019 – present*

A simulator 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
- Implemented an algorithm that applies the rules of Texas hold'em to determine the winning hand given all cards and actions in play

CS 61b: Data Structures
Languages: Java — *Fall 2018*

- **Galaxies:** Implemented a puzzle game consisting of dots, with players surrounding each dot by laying down vertical or horizontal walls perfectly symmetrical around the dot
- **Enigma:** Implemented an improved Enigma machine, a German device used to encrypt messages during World War II, avoiding the cryptographic weaknesses of the original machine
- **Amazons:** Implemented a strategy game played on a chess board where users can play human vs human or human vs an AI made using a game tree to calculate the best moves
- **Graphs:** Implemented a graphs utility package in Java, including a generalized graph traversal algorithm that can be extended to Depth-First Search, Breadth-First Search, Dijkstra's and A*

CS 61c: Great Ideas in Computer Architecture (Machine Structures)
Languages: C, GoLang — *Spring 2019*

- **Simplified C compiler:** Implemented a basic compiler in C for a simplified version of the C language, starting with lexing the code into tokens, which are then parsed into an abstract syntax tree (AST), which is then used to generate RISC-V assembly code
- **Performance programming:** Utilized Intel intrinsic SIMD instructions and OpenMP to parallelize operations in C code, resulting in a 16x speed-up in an image recognition algorithm
- **Go:** Implemented a simple file server in GoLang with a limited-size cache able to handle multiple requests simultaneously

Volunteer Work

Cal Fencing Club
Vice President — *August 2017 – present*

- Led the officer team, communicating important information to the team, liaising with Cal Sports Clubs in organizing club events, and training to become club president in 2020-21
- Certified referee for the United States Fencing Association

Skills and interests

Technical skills: Python, Java, C, HTML/CSS, JavaScript, Git

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

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