

Richard Gao

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Skills

Programming Python, C, C++, Java, Javascript, MATLAB, ROS, rviz, Gazebo, Arduino, PyTorch, Docker, Git, Unix
Web HTML5, CSS3, SASS, React, Redux, Node.JS, Django, Firebase, MongoDB, SQL, Hugo

Education

Olin College of Engineering

Needham, MA

CANDIDATE FOR BACHELOR OF SCIENCE IN ENGINEERING WITH COMPUTING

May 2022

- GPA: 3.96/4.0
- *Coursework includes:*
Software Design, Data Structures and Algorithms, Discrete Math, Machine Learning, Fundamentals of Robotics, Computational Robotics*, Software Systems (* currently enrolled)

Experience

Real Steel

Needham, MA

REAL TIME HUMAN TRACKING SHADOW BOXING ROBOT; (<https://youtu.be/1XufNJy1f4Q>)

October 2019 - December 2019

- Created multithreaded framework centered around Python's multiprocessing queues to perform skeleton tracking, joint solving, visualizations, and communication simultaneously
- Performed human skeleton tracking using the Kinect v1 and opensource software OpenNI2 and NiTE2 to obtain joint coordinates

EnergySage

Boston, MA

SOFTWARE DEVELOPMENT INTERNSHIP

June 2019 - August 2019

- Created Django templates and views, aiding in bringing the Buyer's Guide Epic, a comparison platform for energy products, to production
- Upgraded dependencies and wrote characterization tests in preparation for migrating from Python 2 to Python 3
- Improved test coverage by writing Django unit tests that maintained the code base for agile development

Dine

Needham, MA

FOOD APP STARTUP; (https://youtu.be/_01TvMq482o)

November 2018 - January 2019

- Built a restaurant management system with React components and Redux state management that syncs in real time with food orders sent from a companion mobile app using Firebase Firestore
- Designed a landing page to showcase the mobile app and Dine methodology using Hugo

Pomodoro-Chat

Freehold, NJ

WEB DEVELOPMENT PROJECT; (<https://pomodoro-chat.herokuapp.com/>)

April 2018 - June 2018

- Created a text and video chat platform with a lobby, study rooms, and synchronized Pomodoro timers for studying with an accountability partner
- Designed a custom front-end UI using Pug.js with modular SASS components and BEM methodology
- Built and navigated WebRTC handshake requirements to set up peer-to-peer connections
- Implemented a Node.JS server for handling requests sent by clients to connect to peer-to-peer videochat rooms

Activities

Software Design TA

Needham, MA

TEACHING ASSISTANT FOR OLIN'S CORE SOFTWARE CLASS

January 2020 - Present

- Aided students in developing fundamental software skills by leading weekly office hours and giving lectures on object oriented python concepts
- Held meetings with students to give guidance on projects and check in on mental health throughout the duration of the class

Olin Robotics Lab

Needham, MA

RESEARCHER AT HIRO (HUMAN INTERACTIONS ROBOTICS LABORATORY); (https://youtu.be/_i04P9R-i1U)

September 2018 - February 2020

- Used ROS and OpenCV's Canny edge detection to draw google search images using a UR5 robotic arm

Honors & Awards

MIT Reality Virtually Hackathon

Boston, MA

BEST IN MOBILITY/COMMUNICATION

January 2019

- Created an AR experience on the Magic Leap headset that uses IBM Watson Text to Speech and a Keras model for hand gesture recognition to display a virtual speech bubble, aiding in learning sign language and easing communication for the hearing impaired

Eagle Scout

Freehold, NJ

PROJECT: CABC - Lines, Signs, and Landscaping

October 2016