Richard Gao

☎ (+732) 616-5432 | ✉ hardlyrichie@gmail.com | ⌂ www.richgao.com | ⌨ hardlyrichie | in hardlyrichie

Education

Olin College of Engineering   *Needham, MA*
CANDIDATE FOR BACHELOR OF SCIENCE IN ENGINEERING WITH COMPUTING   *August 2018 - May 2022*
- GPA: 3.95/4.0
- *Coursework includes:*
        Software Design, Data Structures and Algorithms, Discrete Math, Machine Learning,
        Software Systems, Computational Robotics, Databases* (* currently enrolled)

Skills

Languages: Javascript, Typescript, Python, C, C++, Java, MATLAB
Technologies: React, Redux, Node.JS, PostgreSQL, MongoDB, Firebase, TypeORM, Jest, Docker, Bash, Git

Professional Experience

Better.com   *New York, NY*
SOFTWARE ENGINEERING INTERN - MONETIZATION POD, GROWTH SQUAD   *June 2021 - August 2021*
- Created a **unified search API** backed by ElasticSearch to manage 3,000+ campaigns, promo-codes, and redemptions that were previously only accessible through individual endpoints and limited by PostgreSQL's feature set
- Deployed to production **single page application in React** to filter discounts, **optimizing workflow for the marketing team by ~5 minutes**
- Set up Kubernetes CronJob to handle data migration/reindexing to keep PostgreSQL database and ElasticSearch indices in sync
- Implemented testing with Jest and React Testing Library to keep search components maintainable

EnergySage   *Boston, MA*
SOFTWARE ENGINEERING INTERN   *June 2019 - August 2019*
- Created Django templates and views to help bring to production the Buyer's Guide Epic, a new comparison platform for energy products
- Upgraded dependencies and wrote characterization tests in preparation for codebase migration from Python 2 to Python 3
- Improved test coverage by writing Django unit tests that maintained the code base for agile development

Projects

Real Steel   *Needham, MA*
REAL TIME HUMAN TRACKING SHADOW BOXING ROBOT; (`https://youtu.be/1XufNJylf4Q`)   *October 2019 - December 2019*
- Created multi-threaded framework with Python's multiprocessing queues to translate real time human movements into robot movements
- Performed human skeleton tracking using the Kinect v1 and opensource software OpenNI2 and NiTE2 to obtain joint coordinates
- Implemented inverse kinematics solver using ikpy and onshape-to-robot to obtain robot joint angles given human joint coordinates

Pomodoro-Chat   *Freehold, NJ*
VIDEO CHAT PLATFORM FOR ACCOUNTABILITY BASED STUDYING   *April 2018 - June 2018*
- Built a text and video chat platform with a lobby, unique password protected study rooms, and synchronized Pomodoro timers for studying with accountability partners
- Implemented a Node.JS server for handling requests to connect to P2P videochat rooms and navigating WebRTC handshake requirements
- Designed the custom front-end UI using Pug.js with modular SASS components and BEM methodology

Activities

Software Design TA   *Needham, MA*
TEACHING ASSISTANT FOR OLIN'S CORE SOFTWARE CLASS   *January 2020 - May 2021*
- Led weekly office hours and lectures on object oriented python concepts to help ~40 students develop fundamental software skills

Olin Robotics Lab   *Needham, MA*
RESEARCHER AT HIRO (HUMAN INTERACTIONS ROBOTICS LABORATORY); (`https://youtu.be/_iO4P9R-ilU`)   *September 2018 - February 2020*
- Developed an application for the UR5 robotic arm with ROS and OpenCV's Canny edge detection to draw images from google search

Honors & Awards

MIT Reality Virtually Hackathon   *Boston, MA*
WON BEST IN MOBILITY/COMMUNICATION   *January 2019*
- Created an AR experience on the Magic Leap headset to aid in learning sign language and ease communication for the hearing impaired by translating audible speech and sign language hand signals to a virtual speech bubble displayed above the speaker's head