James **McDougall**

Computer Engineer – Networks, Security, and Blockchain Enthusiast

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Education

University of California, San Diego — *La Jolla, CA*
B.S. in Computer Engineering — *Expected June 2021*

- RA for one year in Warren College

Skills

Programming Python, C/C++, TensorFlow, Java, JavaScript, ReactJS, Latex
Tools Kubernetes, Docker, Flask, Postgres, Apache Nifi, Azure, Heroku, Bash, Git, Redfish
Clubs Late Night Hacks, AlchemyX Startups

Experience

Research Intern at the **San Diego Supercomputer Center** *September 2019-Present*
- Using Bash, created a program to allow supercomputer users to start Jupyter notebooks over an encrypted connection.

Software Engineering Intern at **Cirrascale Cloud Services** *June-August 2019*
- Designed an ETL (Extract, Transform, Load) diagram using Apache Nifi for transferring data from AWS buckets to local cloud storage.
- Using Docker containers and Azure, designed and implemented components of a data pipeline for self-driving cars including model inferencing, training, and simulation of driving conditions.
- Using Kubernetes, Horovod, and MPI, deployed TensorFlow containers to a multi-GPU, multi-node cluster.
- Created a power management tool for reporting server power and temperature using Redfish REST API and Python, displaying graphs of server usage on an Emoncms dashboard; delivered to client.

Computer Science Tutor in the **UCSD CSE department** *January 2019-June 2019*
- Undergraduate TA for CSE 100 (Advanced Data Structures in C++), CSE 95 (CSE Tutor Training).
- Used C++11 debugging skills to assist students in the lab; explained data structures and algorithms.

Data Analyst in the **UCSD CSE department** *August 2018*
- Performed statistical analyses (t and z tests) on data from a computer science education research project in a Jupyter Notebook using Python, Pandas and organized results in a research paper.

Projects

ClubHouse using **JavaScript**, **Flask, Docker, Heroku, Postgres** *September 2019*
https://club-house-sad.herokuapp.com (only UCSD emails can create an account)
- Using a Flask server hosted on Heroku, implemented an API in Python for adding events to database, verifying user status, and getting images.
- Templated web components in HTML for login page, new user page, dashboard, and individual club pages.
- Using Fetch and JQuery, implemented page logic using including GET and POST requests in concert with page updates.

Security Camera using **React, Flask, Nginx** *December 2019*
https://security-cam.herokuapp.com ***(only whitelisted emails can view)***
- Using Docker Compose, implemented a reverse proxy using Nginx with a Flask server to send a video stream to a Heroku site for remote viewing.

Chicago Crime Analysis using **Jupyter, Python, Pandas, on Github('Project')** *January 2019*
- Using Pandas to organize and a Binomial regression to analyze open source data, predicted likelihood of arrest from district and crime type.

Ultrasonic Sensing Robot (MAUSR) using **Python, Raspberry Pi, on Github** *August 2017*
- Using Python on a Raspberry Pi, manipulated motors to change direction based on ultrasonic sensor data