



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, Apache Nifi, Azure, Bash, Git, Linux, Redfish, VS Code

Clubs

Late Night Hacks, AlchemyX Startups

Experience

Research Intern at San Diego Supercomputer Center

September 2019- present

- Research and development of secure JupyterHub services on a supercomputer with hundreds of nodes.

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 [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

FileBlocks using Python, on Github('FileBlocks')

In Progress

- My current project goal is to create a distributed file system using blockchain and other cryptographic techniques to secure my friends' and family's files.

Personal Website using JavaScript, ReactJS, on Github('website')

September 2019

- Built a webpage using [ReactJS](#) front end on Github pages.

Cat Messages using Flask, Python, on Github('Cat Messages')

August 2019

- Using the [Flask](#) microframework and Twilio API, built a small web app to text random cat messages to users.

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.

ServerPi using PHP, Raspberry Pi, Nginx

December 2018

- Using [Nginx](#) as a web server on a [Raspberry Pi](#) and PHP as a backend language, created a web interface for upload and storage of family photos.

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