# Calvin Huang

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## **EDUCATION**

## University of Michigan

Cincinnati, OH

BSE Computer Science, GPA: 3.870

September 2018-expected May 2022

• Course Highlights: Operating Systems, Machine Learning, Computer Vision, Cybersecurity, Data Structures and Algorithms, Databases, Computer Architecture, Fundamentals of Computer Science, Web Systems, Linear Algebra

#### Professional Experience

## Multidisciplinary Design Program - Proquest OCR

Ann Arbor, MI,

Machine Learning Software Engineer

January 2021-Present

- Collaborated with team of students to create optical character recognition correction algorithm based on state-of-the art language processing models for use in Proquest's TDM Studio.
- Oversaw and managed the Correction Model subteam to adapt machine translation techniques for use in error correction, achieving 86

# Principal Financial Group

Remote

Full-Stack Software Intern

June 2020-August 2020

- Spearheaded the transition to a new logging system, added security features to app deployment pipeline via back-end implementation and Ansible automation, and created a server check for conflicting jobs in order ensure reliable metrics on feature changes and deployments.
- Added deployment API features by implementing cyclical redeployment functionality and reducing deployment downtime with dynamic scheduling.
- Led intern Code Jam team in brainstorming and development of a full-stack web app hosted in AWS and mentored peers in working with web frameworks and deployment methods within the span four days.

## Radiological Health Engineering Laboratory

Ann Arbor, MI

Research Assistant, Dr. Kimberlee Kearfott

 $September\ 2019 ext{-}Present$ 

- Researched and trained machine learning models to correlate weather and radon data to predict indoor radiation levels for use in early detection of earthquakes.
- Designed and deployed MySQL database for weather and radiation sensor data to be displayed on a monitoring website. Wrote data processing pipeline for sanitizing and organizing sensor data before storage.
- Developed iOS and Android apps with a heat map interface for tracking radiation data collected by student-built radiation detectors powered by Raspberry Pi's.

### UM::Autonomy Project Team

Ann Arbor, MI

Deep Learning Computer Vision Engineer

September 2020-Present

- Trained deep convolutional neural net for object detection task using boat camera footage and tested architecture configurations to tune color recognition capabilities.
- Labeled and processed training data using video footage collected from past competitions for use in training the neural net.

### MRover Project Team

Ann Arbor, MI

Computer Vision Engineer

September 2018-May 2020

- Implemented AR tag detection algorithm using OpenCV for a find-and-identify task in the University Rover Challenge
- Presented professional design reviews to the team to interface with other sub-teams in order to decide design priorities for implementing obstacle detection.

## Robotic Arm Control Application

Desktop Simulation Application for Robotic Arm Automation

- Implemented full kinematics library using state of the art inverse kinematics algorithms in Python and TypeScript.
- Leveraged WebGL technologies to create simulation and automated control application for the robotic arm using Electron and React frameworks.

## COVID-19 Heatmap

Web Application and API for Monitoring Projections of the Spread of COVID-19

- Developed efficient REST API with Rust to collect and sanitize detailed geographical data at specified time intervals and to communicate current data on-demand to front-end applications.
- Designed client-side web app using React and Google Maps to visualize global and local data of COVID-19 cases using configurable heat maps.

## Video Conferencing Web Application

Video Chat Web Application for Virtual Hangouts

- Incorporated WebRTC video technology into modern video-client web app designed to be provide self-hosted peer-to-peer video communications.
- Utilized Node.js back-end socketing and custom peer-to-peer server for reliable and secure video calls across different devices.

#### SKILLS

# Programming Languages

C/C++, MATLAB, Python, Swift, C, Java, Javascript/TypeScript, Rust, Julia, MySQL, MongoDB, DynamoDB

## Technologies and Frameworks

React, NodeJS, Flask, JAX-RS, OpenCV, AWS, Google Cloud, Jupyter Notebook, PyTorch, TensorFlow 2.0

#### Honors

• James B. Angell Scholar

March 2020

• MTV Undergraduate Fellowship Recipient

Fall 2020, Winter 2021

- Tau Beta Pi, Michigan Gamma Chapter Professional Development Chair September 2019-Present
- Eta Kappa Nu, Beta-Epsilon Chapter

September 2020-Present