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-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.

Personal Projects

- **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*