Mukund Mauji

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Education

B.A.Sc Mathematics and Engineering (Systems and Robotics) Queen's University | **Class of 2020**

- Awards: 125th Anniversary Engineering Excellence Award, Excellence Scholarship, Science '68 Scholarship

Experience

Hardware Engineer | Cisco Meraki San Francisco, USA | **May 2019 – Sept. 2019**

- Led the research and validation stages of a new product for the camera line, Meraki's fastest growing product line
- Performed field testing and wrote a report to illustrate competitive advantages of product in various situations
- Compiled all necessary information to write a Parts Requirement Document (PRD) to kick off the project
- Completed hardware debugging to help solve motor issues

Business Technology Analyst | Deloitte Toronto, Canada | **May 2018 – Sept. 2018**

- Implemented facial recognition technology to recognize and save faces to a database using a Raspberry Pi and camera
- Developed modular application (Python, OpenCV) for real-time classification and model retraining
- Established databases using AWS DynamoDB to upload model data for higher-characteristic trait analysis
- Designed application development under ongoing client needs and collected user requirements

Engineering Tutor | EngLinks Kingston, Canada | **Nov. 2016 – Present**

- Tutored extensively one-on-one and in small groups, both in ongoing and single-topic sessions
- Prepared and delivered exam prep workshops for 60 - 100 people
- Subjects: Calculus I/II, Linear Algebra, Intro to Programming, Engineering Graphics, Math and Science (Gr. 10 - 12)

Extracurricular activities

Co-Chair | QHacks Kingston, Canada | **Apr. 2019 – Present**

- Spearheaded the planning and execution of Queen's fifth annual hackathon (https://qhacks.io)
- Grew relationships and secured new ones with strategic and community partners, raising a budget of over $80,000
- Hired and managed the 25-person executive and 40 volunteers to ensure the event ran smoothly for 250+ delegates
- Introducing agile methodology to streamline efficiency while applying organizational behavior principles to uphold team morale

Projects

Undergraduate Thesis Project Queen's University | **Sept. 2019 – Apr. 2020**

- Topic: Prosthesis Design Using Stochastic Control Theory
- Explored different methods to quantify optimal paths for a prosthetic limb
- Implemented a Linear Quadratic Gaussian (LQG) controller to track a random and a zero-reference trajectory
- Explored methods to quantize brain signals to force inputs to arm

Pneumonia Detection in Chest X-rays Queen's University | **Oct. 2019 – Dec. 2019**

- Built a CNN in TensorFlow to classify patients with pneumonia
- Created a data input pipeline with built-in preprocessing using the TFRecord module
- Implemented a custom layer to utilize Spatial Pyramid Pooling to allow for variable length images
- Used version control to manage other models with team members (Git)

Autonomous Vehicle Platoon Queen's University | **Sept. 2019 – Dec. 2019**

- Programmed a platoon of 4 independent, autonomous robots with no communication between bots (Arduino)
- Utilized modular programming to allow each robot to lead or follow the platoon, based on button inputs
- Implemented color detection, accelerometer feedback and bumper detection to navigate multiples arenas

Skills

Languages: Hindi, French, Spanish
Programming: Python, Latex, MATLAB, C, Arduino, Git