

# Mukund Mauji

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## Education

**B.A.Sc Mathematics and Engineering (Systems and Robotics)**

Queen's University | **Class of 2020**

- Awards: 125<sup>th</sup> 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 camera 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 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 led the executive team, introducing agile methodology to streamline efficiency while applying organizational behavior principles to uphold team morale
- Managed the 25-person executive and 40 volunteers to ensure the event ran smoothly for over 250 attendees

## Projects

**Undergraduate Thesis Project**

Queen's University | **Sept. 2019 – Present**

- Topic: Prosthesis Design Using Stochastic Control and Information 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 (arXiv:1406.4729) to account for variable length images

**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 a variable arena

## Skills

**Languages:** Hindi, French, Spanish

**Programming:** Python, Dynamic HTML, Latex, MATLAB, C, Arduino