ALY TAWFIK

148 Haddon Avenue South • Hamilton, ON L8S1X8
519-982-7285 • tawfika@mcmaster.ca

EDUCATION

MCMASTER UNIVERSITY **Hamilton, ON**
Bachelor of Electrical Engineering; Co-op program; GPA 3.8/4.0 **2016 – Present**

- Classes:
  - Logic Design -> Designed sequential and combinational circuits using Quartus II, PLC's, FPGAs, and simulations
  - Electronic Devices and Circuits -> Learned about various circuit components (such as diodes, MOSFETs, flip flops, amplifiers, filters and oscillators) and their applications, performing phasor analysis on AC circuits. Analysed circuits in labs using equipment such as (oscilloscopes, function generators etc.)
  - Data Structure Algorithms and Discrete Math -> Analyzed runtime and space efficiencies of programs in Python, C, Java, and JavaScript, learning various algorithms

- Designed and programmed electrical circuits for motion detection using microcontrollers as part of SumoBots club
- Implemented Flask servers on a Raspberry Pi using Python and Linux to host a local server, developing an app for sending information through a local router, and decoding QR codes through the phone camera with QR Reader libraries

- Helped organize DeltaHacks hackathon competition
- Designed and implemented an application for eBooks with summary generation for each chapter (inspired by Netflix show recaps), winning the Kobo award at Delta Hacks and scoring in the top 3 for General Hacks
- Competed in IEEE HackerRank competition, scored in the top 10

VINCENT MASSEY SECONDARY SCHOOL **Windsor, ON**
High School Diploma; Ontario Secondary School Diploma (OSSD); Enriched Program for Math and Science; 92% Average **2012 – 2016**

- Developed gesture-controlled car using an Arduino Uno and a Myo Controller with Bluetooth communication
- Programmed and built a ping pong ball machine with adjustable pitch and motor speed using an IR remote
- Designed and assembled a 3D printed prosthetic hand consisting of various types of gears: beveled, worm, and spur
- Participated in robotics, computer science, and MasseyHackers teams
- Placed near the top in the University of Waterloo math competitions: Pascal, Fermat, and Cayley

WORK EXPERIENCE

NEURUNO STARTUP COMPANY **San Jose, CA**
Software Engineering Intern **Summer 2018**

- Developed machine learning code in python to analyze near infrared spectrums
  - Used SVM to develop a general classifier that can classify the type of object scanned
  - Developed a Neural Network to approximate the sugar levels inside an apple in a non-destructive manner
  - Implemented many algorithms to filter and preprocess the spectral data
- Scanned a variety of materials with a spectrometer to extract NIR-Spectral data

ADDITIONAL INFORMATION

- **Skills**:
  - Experienced using Quartus II and Pspice for electrical circuit modelling.
  - Knowledge in programming in Python, C, Verilog, Perl, Java, Javascript and Android studio.
  - 3D modeling through Autodesk Inventor, Blender, and Sketchup
  - Proficient with Microsoft Office
  - Familiar with the use of Git version control
- **Volunteer Experience**:
  - Tutoring First Year Students (2017-Present): Tutored first year math and physics students
  - Landscaper (2012): Responsible for the upkeep and maintenance of many family yards throughout the community
  - Childcare Provider (2008-2014): Supervised indoor and outdoor activities as well as prepared nutritious meals and snacks