

# Paavan Raj

MECHATRONICS ENGINEER

Brampton, Ontario

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## Education

### University of Western University

London, Ontario

B.E.Sc. IN MECHATRONICS SYSTEMS ENGINEERING

Sept 2015 - April 2019

- Related Coursework: Advanced Control Theory, Robotic Manipulators, Data Structures and Algorithms, Circuit Design and Analysis, Mechatronics Systems Design, Microprocessor Selection, Digital Image Processing, Real Time and Embedded Systems, Sensors and Actuators Selection

## Work Experience

### Minus Forty Technologies

Georgetown, ON

PRODUCTION ENGINEER CO-OP

May 2018 - Aug 2018

- Tasked with monitoring production of refrigeration units and aggregated smaller processes to increase production capacity by 15%
- Analyzed 3 prototype models for ease of manufacturing and troubleshooting production difficulties

### M&R Automation Canada

Vaughan, ON

QUALITY ASSURANCE CO-OP

May 2016 - Aug 2016

- Assembled, installed and tested 15 electromechanical sub-assemblies and documented issues with design and performance, as well as ensuring GD&T of machined parts met ISO 9001 standard.
- Documented and quarantined 30 defective parts for follow-up with our suppliers

### M&R Automation Canada

Vaughan, ON

TECHNICAL ASSOCIATE ASSISTANT

July 2015 - Aug 2015

- Facilitated communication between manufacturing manager and mechanic team, shortening build time by 3 days over the course of 2 months
- Organized and tracked over 400 parts used in the automation line in order of cell and assembly number
- Performed precision measurement and geometrical analysis on 250 parts with accuracy up to 1 micron

## Extracurricular Activity

### Western SAE Aero Design Team

London, ON

SENIOR DESIGN MEMBER AND GLIDER CONTROL LEAD

Sept 2016 - March 2019

- Lead small team of students in designing autonomous flight algorithm for glider using Arduino to calculate position and heading while making subsequent corrections using tuned PID control system to adjust yaw and roll
- Worked with team of 15 other engineering students to design and build miniature airplane to compete in the SAE Aero Design Competition
- Assessed 4 different airfoils, including Eppler 423 for optimal lift/drag ratios using XFLR5
- Assisted controls teams with designing telemetric data acquisition system and communications
- Currently designing, building and testing 3 quadcopters with intention of autonomous flight and for testing payload drop and stabilization algorithms to be used on the competition plane

### Western Engineering Robotics Club

London, ON

SENIOR MEMBER

Sept 2016 - April 2019

- Used openCV library to create algorithm for detecting and tracking a path that an autonomous car would follow
- Individually assembled an Arduino controlled bipedal robot and programmed microprocessor to allow the robot to walk without assistance
- Soldered 80 surface mounted electronic components onto custom designed PCB for bipedal robot
- Taught new members fundamentals of robotics and skills such as soldering, reading schematic diagrams and C-based programming

## Skills

### Leadership

- Communication, collaboration, creativity, flexibility, continuous learning, problem solving, dedication, adaptability, conflict management

### Technical

- Solidworks, Eagle, C++, Java, Python, OpenCV, Object-Oriented Programming, Assembly, Control System Modelling, Arduino, Iterative Design and Testing, MATLAB, Simulink, Arduino, Git, Critical Path Planning, Failure Modes and Analysis, Communication Protocols (SPI, I2C), Linux (Ubuntu)