Paavan **Raj**

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Education

University of Western University | B.E.Sc. in Mechatronics Systems Engineering   *Sept 2015 - Present*
- Related Coursework: Control Theory, Robotic Manipulators, Data Structures and Algorithms, Circuit Design and Analysis, Mechatronics Systems Design, Finite Element Analysis, Microprocessor Selection, Digital Image Processing, Kinematics and Dynamics of Machines

Work Experience

Minus Forty Technologies | 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 | 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 | 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 | Senior Design Member and Drone Team Co-Lead   *Sept 2016 - Present*
- · 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 Competition | Coordinator   *Sept 2017 - April 2018*
- Managed the innovative engineering design category by drafting the competition guidelines, as well the problem statement for the category
- Supervised and overlooked the event on competition day, facilitating 4 teams participating in the innovation category as well assisting in the senior design, communications and consulting competitions

Western Engineering Robotics Club | Senior Member   *Sept 2016 - Present*
- 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

Projects

Hex V5 | Data Acquisition Drone   *Sept 2017 - Present*
- Custom designed drone for Aero Design Team with mechanisms to drop payloads for testing autonomous flight and stabilization algorithms

Stark | Autonomous Mobile Robot   *March 2017 - April 2017*
- Designed fully autonomous and robust robot capable of locating and lifting magnetic cubes using an Arduino microcontroller

Jarvis | Line Following Robot   *Feb 2017*
- Successfully followed line using Arduino microcontroller and libraries to control motors, servos and encoders

Skills

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

Technical |
- Solidworks, Eagle, C++, Java, SQL, Python, OpenCV, Object-Oriented Programming, Assembly, Matlab, Control System Modelling, Arduino, Iterative Design and Testing, Version Control, Critical Path Planning, Failure Modes and Analysis