

RASESH PATEL

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Engineering Experience

Tesla May 2026 – Aug 2026
Manufacturing Controls Engineering Intern (MADE Team) Reno, Nevada

- Developed **PLC** programs, Hardware and **Profinet configuration**, through **Siemens TIA**
- Integrated **Fanuc Robots**, **ION**, **FX**, Plant Network and additional PLCs through **Profinet** and **Ethernet** Protocols
- Took **ownership** of PMC1 production cell with two **FANUC** robots, completing robot sequences, **PLC handshakes**, station logic, to reach full-scale **production** in **6 weeks**, then cut cycle time from **30 to 22 seconds (27%)**
- **HMI** design with **SIMATIC WinCC**, completing **250** and **270 safety buyoff** for **Optimus** manufacturing stations
- **VFD/Servo** commissioning, creating Robot Programs using **Roboguide V10** and **IRVision** Programs from scratch

Spirol May 2025 – March 2026
Jr. Controls Engineer Windsor, Ontario

- Performed **PLC troubleshooting** and system optimization, including **Siemens** and **Rockwell/AB control systems**
- Serving as the **lead engineer** for the **EPSON robot cell** project, responsible for mechanical design, **wiring diagrams**, and **PLC control logic**, overseeing ongoing programming and **system integration**

Jr. Process Engineering Intern Windsor, Ontario

- Designed and implemented **complete control systems** for Armorgalv Department and manufacturing lines, including **GUI** interface, **Modbus RS485** communication, error handling, and real-time data collection with **Excel**, **Matplotlib**
- Programmed and integrated industrial robots and **PLCs**, including **EPSON robots (SPEL+)**, **I/O terminal** management, virtual CAD boundaries, and **EOAT** mechanisms with pneumatic and spring-loaded designs
- Configured **Keyence** safety devices and controllers with radar sensors and device guards for **CSA** compliance across multiple lines, created Work Instructions, **SOPs**, and **electrical** and **control** documentation

McMaster Aerial Robotics and Drones Club January 2025 – Present
Mechanical Team Lead Hamilton, Ontario

- Led the mechanical team, coordinating design tasks, **timelines**, and **design reviews**
- Designed and optimized drone components using **SolidWorks**, emphasizing **precision control** and **DFM** principles

McMaster Mars Rover Team September 2025 – Present
Mechanical Team Member Hamilton, Ontario

- Designed and optimized **robotic arm** components using **SolidWorks**, focusing on **manufacturability**, weight, and structural performance, conducted **FEA analysis**
- Collaborated with electrical team to **integrate** the arm onto the rover, ensuring reliable actuation and robust integration

Spirol July 2024 – August 2024
Engineer Intern Windsor, Ontario

- Implemented **Lean Manufacturing**, and **Six Sigma** methodologies, leading to a 100 percent increase in daily runtime, conducted quality inspection procedures, and **Red Rabbit Testing**, ensuring compliance with industry standards

Projects

Quadropod | Raspberry Pi, Linux, Solidworks, KiCad July 2025 – Present

- Built a quadropod robot from the ground up, designing structural components in **SolidWorks**, creating **custom PCBs**, integrating sensors and servos, and implementing **Linux-based** motion algorithms on a **Raspberry Pi**

Guitar Chord Player | AutoDesk Inventor, Python, Prusa Slicer, Ardiuno Uno February 2025 - April 2025

- Ranked **Top 12 of 250 projects**, earning qualification for the **McMaster First-Year Engineering Showcase**
- Designed and developed a complete product that plays chords for various songs utilizing an **Ardiuno Uno**, speaker set-up and **bluetooth connectivity**, optimized for continuous use with **USB power**

Heelverine - McMaster CAD Design-a-thon | SolidWorks, Blender, AutoDesk Fusion 360 January 2025

- Engineered a compact **rack-and-pinion system** within the heel space, integrating a spring-loaded locking mechanism to prevent accidental activation, created high-quality product animations using Blender, effectively visualizing the design
- Developed a **fully functional prototype** within 24 hours, utilizing 3D printing for rapid testing and refinement

Skills

Technical: Siemens TIA, Solidworks, Fanuc TP and Roboguide, Servo/Actuator - Advanced Motion Control, EPLAN, FEA, Solid Edge, NX, CATIA, AutoDesk Inventor, GD&T, Engineering Drawings, 3-D Printing

Languages: Python, Java, C++, PLC Programming, Matplotlib, EPSON SPEL+, Excel Macros,, VBA, HMI Design

Education

McMaster University Graduation: May 2028
Bachelor of Mechanical Engineering - CGPA 3.7 Hamilton, Ontario