Parthiv Patel

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Education

Mechatronic & Robotics Engineering, BSc Co-op **Class of 2029**

University of Alberta - GPA: 3.5/4.0 *Edmonton, AB*

- Relevant Coursework: Object-Oriented Programming, Electrical Circuits, Digital Logic Fundamentals, Engineering Design & CAD (SolidWorks), Engineering Mechanics

Technical Skills

Electrical Design: Altium, KiCAD, Arduino, Raspberry Pi, PCB Milling
Mechanical Design: AutoCAD, SolidWorks, Fusion 360
Programming: Linux Environment, Python, C/C++, MATLAB, JavaScript
Manufacturing: 3D Printing, CO2 and Fiber Laser Cutting, CNC Milling, CNC Lathe

Work Experience

Engineering Summer Student **May 2025 – August 2025**

Universe Machine Corporation *Edmonton, AB*

- Designed valve components (flanging, T-bars, extensions, globe-to-stop-check conversions) by taking shop-floor measurements, creating modelled drawings in AutoCAD, and incorporating principles of design for manufacturing (DFM).
- Performed stress concentration, pin strength, and pressure design calculations to design valve modifications.
- Digitized and indexed 30+ years of engineering drawings to improve retrieval efficiency and supported the transition to digital signing and authentication in compliance with APEGA standards.
- Automated workflows with Python scripts and Excel macros (CSV data processing), streamlining internal processes.

Production Team Lead **January – June 2024**

Foldify – A Junior Achievement Company *Edmonton, AB*

- Co-led a 20-member team in design, production, and sales of 100+ clothes-folding boards, generating $2,500 in revenue.
- Oversaw the design process, iterating multiple versions before finalizing a three-flap folding board for practical home use, and coordinated manufacturing for large-scale production.
- Engaged with customers and stakeholders at trade shows and business events, demonstrating strong interpersonal, presentation, and relationship-building skills.

Project Experience

Powertrain Team Member | UAlberta Formula Racing **September 2025 – Present**

- Designed a PCB using KiCAD to enable power switching between the tractive battery and low-voltage circuit.
- Collaborating with a team to develop embedded Teensy ECU firmware for a CAN-controlled inverter supporting regenerative braking, using GitHub for version control and adhering to Formula SAE Electric rules.
- Tuned and tested the inverter EEPROM settings using a dynamometer and performed efficiency calculations comparing recovered energy to thermal losses during regenerative braking.

Electro-mechanical Team Member | UAlberta Aerial Robotics Group **September 2025 – Present**

- Fabricated PCBs using stencil-applied solder paste, surface-mount component placement, and reflow soldering.
- Used SolidWorks to model electronic component-mounting brackets with appropriate tolerancing, using FEA for validation, followed by 3D printing and integration.
- Designed and prototyped a servo-actuated tilt mechanism for dual motors, including carbon fiber rod mounting, motor mounts, and friction-fit assemblies, ensuring mechanical strength under full thrust.

Drone Error-Display Module | Embedded Systems Personal Project **November 2025 – February 2026**

- Prototyped a minimum viable product (MVP) error display system with buttons, a potentiometer, and a master–slave I^2C architecture between Arduino and Raspberry Pi.
- Fabricated and assembled the PCBA, including soldering, integrated a 16×2 LCD module, and deployed the system directly onto the drone for real-time error display during operation.

Robotic Gripper | Mechatronics Personal Project **December 2025 – January 2026**

- Designed and manufactured a robotic gripper in Fusion 360, incorporating a geared mechanical transmission and 3D-printed components.
- Implemented Arduino-based control by using a motor driver and programming motion control for gripper actuation.