Krish Patel

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EDUCATION

Bachelor of Engineering (BEng) – Mechatronics Engineering **Sep. 2023 - Expected Apr. 2028**
Toronto Metropolitan University *Toronto, ON*

- **Accomplishments:** Winner of MET Junior Design Competition (November 2024), Winner of OEC Junior Design Competition (January 2025), Winner of MARS Rocket Design (December 2024)
- **Relevant Coursework:** Analysis of Electric Circuits, Signals and Systems, Microprocessor Systems, Machine Mechanics and Design, Robotics, Electromechanical System Modelling and Design, Measurements, Sensors, and Instruments.

TECHNICAL SKILLS

- **Software & Analysis:** LabView, SolidWorks, C++ Programming, Arduino Programming, Simulink, MATLAB, Python Programming, Power BI, Excel, GitHub, VSCode, OpenCV, YOLOv4-tiny, Raspberry Pi,
- **Manufacturing:** 3-D Printing, CNC Machining, PCB Prototype and Circuit Design, OpenRocket,

ENGINEERING PROJECTS

Clinical Trials ETL Pipeline + Power BI Dashboard **Feb, 2026**

- Built an **ETL pipeline** in Python, extracting **100+** clinical trial records from ClinicalTrials.gov **REST API**, flattening nested **JSON** into a normalized **PostgreSQL** schema.
- Designed **7** analytical SQL views and exported aggregated datasets for a **Power BI** dashboard tracking trial status, phases, sponsors, and geographic distribution.

Smart Parking Garage System – Senior Design Project **Nov 2025 – Dec 2025**
Metropolitan Engineering Competition (MEC) 2025

- Designed and built a multi-level smart parking garage prototype using **Arduino-based** control, integrating sensors, servo-driven gates, and real-time LED status indicators.
- Implemented AI-inspired parking allocation, safety systems, and energy management, including hazard detection, automated responses, and off-peak power optimization.

Robot Design and Artificial Intelligence Programming **Jan 2025 – May 2025**
Autonomous Rover System Project (Academic Project)

- Designed and developed an autonomous rover system with object identification, obstacle avoidance, and self-navigation capabilities using computer vision (**OpenCV, YOLOv4-tiny**).
- Engineered optimized **C++** architecture and hardware integration (**Raspberry Pi Camera V2, GPU acceleration**), improving real-time performance.

High Power Rocket Design Project - Avionics Specialist (First Place Winner) **Sept 2024 – Dec 2024**
Metropolitan Aerospace Rocket Society (MARS)

- Developed and tested open-source avionics and telemetry systems for a competitive student-built rocket.
- Configured Raspberry Pi ground stations and integrated flight computers for real-time data acquisition and transmission.

WORK EXPERIENCE

Research and Development Intern **Jan 2026 – May 2026**
Metropolitan Hyperloop – Toronto Metropolitan University

- Conducted technical research on Hyperloop pod subsystems, including structural design, braking system, and analysis.
- Analyzed design concepts and engineering trade-offs to support development of manufacturable pod components.

Director of Outreach **June 2025 - Present**
Mechatronics Course Union – Toronto Metropolitan University

- Partnered with faculty and industry experts to host skill-development workshops on topics like SolidWorks design, Arduino Programming, and embedded systems.
- Led industry and community outreach initiatives, building partnerships with engineering firms, start-ups, and university departments to create collaboration and sponsorship opportunities.

Lifeguard **May 2025 – Sept 2025**
Markham Pan AM Centre

- Ensured patron safety by monitoring swimming areas and responding swiftly to emergencies with rescues, first aid, and CPR
- Collaborated with lifeguard teams to conduct emergency drills, improve response times, and educate swimmers on water safety and risk prevention.