

Dhruv Anand

(647)–613–5413 | a.dhruv2005@gmail.com | [Portfolio](#) | [GitHub](#) | [LinkedIn](#)

Highlights of Qualifications

- Third-year Electrical Engineering (Co-op) student at McMaster University, with strong academic standing and hands-on lab/project experience
- Achieved a **4.0/4.0 GPA** in McMaster's rigorous Integrated Cornerstone Design Projects in Engineering, demonstrating excellence in design, analysis, and innovation
- **Proven critical thinking and rapid learning ability**, developed through both academic success and high-responsibility work experience in fast-paced environments
- Demonstrated **time management and prioritization**, excelling academically while managing responsibilities in high-pressure, safety-critical work environments
- Skilled in **team-based collaboration**, with extensive experience working in multidisciplinary groups to deliver results under deadlines

Education

Bachelor of Engineering, Electrical (CO-OP)

2023 – 2027

McMaster University – Hamilton, ON

- Developed logic-based circuits using Quartus Prime and Verilog, earning A+ in digital systems labs
- Designed and analyzed DC/AC circuits with circuit theory principles; applied PSpice to simulate and validate lab results, earning A+ in circuit analysis labs and projects
- Programmed in C and C++ with an emphasis on object-oriented design, achieving A+ across labs and projects
- Utilized MATLAB for numerical methods, data visualization, and system simulations
- Implemented and tested microcontroller-based systems (Arduino / ARM platforms) for embedded applications
- Collaborated on team-based design projects, integrating hardware and software to meet defined engineering requirements
- Produced professional technical reports and presentations, emphasizing clear documentation and engineering communication

Experience

Deck Supervisor

Sep 2025 – Present

City of Brampton – Brampton, Ontario

- Lead day-to-day operations on the pool deck, coordinating staff to maintain safety and service standards
- Oversee a team of lifeguards and instructors, ensuring compliance with procedures and effective workload distribution
- Respond to incidents and make time-critical decisions to resolve safety concerns
- Monitor operations, identify process gaps, and implement improvements to enhance efficiency and risk management

Swim Instructor and Lifeguard

Aug 2022 – Present

City of Brampton – Brampton, Ontario

- Ensure patron safety by maintaining constant surveillance and enforcing facility regulations
- Design and deliver structured swimming lessons for diverse age groups and skill levels
- Promote drowning prevention and water safety through community outreach and instruction
- Collaborate with patrons and staff to resolve conflicts, facilitate drop-in swims, and enhance customer experience
- Adapt teaching methods and operational practices to meet changing conditions and individual needs

McDonalds Canada – Brampton, Ontario

- Worked in a fast-paced team environment, coordinating with others to meet tight service timelines and maintain operational flow
- Resolved customer issues with professionalism and urgency, demonstrating strong communication and problem-solving skills
- Adapted to changing priorities and multitasked under pressure, reinforcing time management and situational awareness

Skills

Programming	Assembly, Python, C, C++, MATLAB, R
Software	Quartus, EasyEDA, Waveforms, OrCad Pspice, Inventor, Microsoft Office
Hardware	TI-MSP Launchpad, FPGA, Arduino, Oscilloscope, Waveform Generator, Multimeter

Projects**Embedded LIDAR Mapping System | McMaster University** **April 2025**

- Designed and implemented a 3D spatial mapping system using a VL53L1X ToF sensor, MSP432 microcontroller, and stepper motor
- Captured and transmitted distance data via I2C and UART, converting polar coordinates to Cartesian for MATLAB visualization
- Developed synchronized motor control and scanning logic to generate layered helical plots of indoor environments

CMOS XOR Gate Design | McMaster University **April 2025**

- Designed and implemented a CMOS XOR gate using NMOS/PMOS transistors with optimized 2.5:1 sizing for balanced switching
- Validated functionality through truth table testing, static voltage level measurements, and hardware implementation
- Performed timing analysis to quantify rise/fall times and assess propagation delay using oscilloscope measurements

BJT Common Collector Amplifier | McMaster University **February 2025**

- Designed and implemented a BJT-based common collector amplifier meeting a gain ≥ 0.9 with $<10\%$ attenuation
- Modeled and simulated the circuit in PSpice using a 2N3904 transistor, validating theoretical gain and linearity
- Built and tested the amplifier on hardware using Analog Discovery 3 and WaveForms to measure midband gain, phase shift, and spectrum response

Voltage Controlled Switch | McMaster University **February 2025**

- Designed and implemented two MOSFET-based voltage-controlled switches to analyze real-world non-idealities including R_{on} , leakage current, threshold voltage, and bidirectionality
- Modeled and tested both designs in OrCAD PSpice, measuring voltage drops, leakage currents, and switching thresholds against theoretical expectations
- Built and evaluated circuits on hardware with AD3 + WaveForms, confirming non-ideal behavior and assessing trade-offs in complexity, cost, and performance

DC Power Supply | McMaster University **January 2025**

- Designed and simulated a DC power supply converting 120V RMS AC to a regulated $3V \pm 0.1V$ DC at 10 mA using transformer modeling, rectification, and RC filtering
- Verified design performance in OrCAD PSpice with transient waveform analysis, confirming voltage regulation and ripple within specification
- Implemented and tested the circuit on hardware using Analog Discovery 3 (AD3) and WaveForms, analyzing discrepancies between simulated and real results