Gurnit Chopra

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Education

McMaster University Hamilton, ON
Bachelor of Engineering Co-op (B.Eng.), Computer Engineering | GPA: 11.9/12.0 *Expected Apr 2029*

- **Relevant Coursework:** Logic Design (Verilog, FPGA, Quartus), Circuit Analysis, Probability & Statistics
- **Training & Certifications:** Altium PCB Design Course, AWS Cloud Practitioner Essentials
- **Awards:** Dean's Honour List (2025–26), Electro-Federation Canada Doug Baldwin Memorial Scholarship (2026)

Experience

Co-Founder & FPGA Design Lead Oct 2026 – Present
McMaster Low Latency Labs (ML3) *Hamilton, ON*

- Student club building low-latency, high-performance computing systems across hardware and software
- Leading the club's **FPGA design** subteam, launching in Winter 2027 as a core part of its low-latency goal
- Self-studying **digital design and computer architecture** (Harris & Harris) and *Getting Started with FPGAs*

Embedded Systems & Controls Software Engineer Oct 2026 – Present
McMaster Exoskeleton *Hamilton, ON*

- Student design team building a wearable assistive exoskeleton, competing at the international ACE competition

Electrical Engineer Sep 2026 – Present
McMaster RoboMaster Club *Hamilton, ON*

- Student team designing and building robots for DJI's international RoboMaster University robotics competition

Computer Vision Subteam Member Sep 2025 – Aug 2026
McMaster RoboMaster Club *Hamilton, ON*

- Ran **live test sessions** on the robot's auto-aim system, measuring a **70% hit rate on moving targets**
- Collected match and test footage for training, supporting a **∼20% year-over-year gain** in opponent detection

Technical Training Developer Jun 2026 – Present
ICC Evaluation Service (Electrical Division) *Brea, CA (Remote)*

- Subsidiary of the International Code Council that evaluates building and electrical products for code compliance
- Authored **26 ISO/IEC 17020** field evaluation training modules for electrical equipment, each 40+ scripted slides
- Wrote pass/fail test training on **hi-pot, insulation resistance, ground bond, and leakage current**
- Covered construction evaluation by hazard type, including **clearance and creepage**, grounding, and bonding
- Taught documenting findings with objective evidence and re-inspecting corrections before final disposition
- Mapped **UL, CSA C22.2, NFPA 70/790/791, and CEC** to inspection criteria for 14 equipment categories

Projects

ESP32 Ultrasonic Radar: Build & Characterization ↗ | *ESP32, C++, Python, Analog Discovery 3* Jun – Oct 2026

- Built a real-time ultrasonic radar on an **ESP32** (HC-SR04, servo, I2C OLED) in C++, running without a PC
- Wrote a **test plan** with pass/fail limits for 6 tests and published a **test report**
- Automated tests with an **Analog Discovery 3** and Python (pyserial, dwfpy), logging before/after data
- Root-caused a **5.05 V** output on a 3.3 V GPIO, fixed with a divider; a timeout cut loop time **19%**
- Corrected distance conversion, cutting RMS error from **0.92 to 0.63 cm**; verified echo timing within 0.01%

Robotic End Effector ↗ | *Autodesk Inventor, 3D Printing, Servo Actuation, Python* Oct 2025 – Dec 2025

- Designed a servo-driven **rack-and-pinion** gripper for a warehouse robot arm, with full CAD and assembly drawings
- Validated 3D-printed prototypes on a Raspberry Pi 4 controlled arm, cutting manual handling effort by **∼95%**

Technical Skills

Test & Measurement: Analog Discovery 3 (scope, logic analyzer), multimeter, Python automation (pyserial, dwfpy)
Standards & Compliance: ISO/IEC 17020, UL, CSA C22.2 series, NFPA 70/790/791, CEC, engineering drawings
Hardware & Interfaces: FPGA, ESP32, Arduino, Raspberry Pi, I2C, UART, PWM, GPIO, sensors, motor drivers
Languages: Verilog, C/C++, Python, MATLAB, Java, JavaScript
Tools: Quartus Prime, Altium Designer, Autodesk Inventor, Git/GitHub, VS Code, Arduino IDE