

# Om Patel

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## Education

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**University of Toronto – BAsC in Electrical Engineering + PEY Co-op** **Expected May 2028**

- **Relevant Coursework:** Signals and Systems, Digital Systems, Analog & Digital Electronics, Hardware Design & Communication, Computer Networks & Hardware, Fundamentals of Deep Learning, Control Systems

## Skills

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**Languages:** C, C++, Python, RV32 Assembly, Verilog, JavaScript, SQL

**Tools:** Altium Designer, Quartus, ModelSim, LTSpice, MATLAB, SUE SoC, MMI MAX (IC Layout), Keil MDK, STM32CubeMX

**Hardware:** Oscilloscopes/Lab Equipment, Cortex M4 (STM32), DE1-SoC FPGA, Arduino (R3, Q), ESP32, Soldering

## Experience

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**Quality & Automation Engineer Intern | Relay Financial** **May 2026 – Present**

- Built core banking test suite to 50+ maintained tests by writing 15+ end-to-end tests (API, UI, database) for API integrations (Air Wallex, Nium International Wires) using Playwright and Bruno
- Reduced team-owned test-suite runtime by 42% in a 100+ deploys/week environment by rebalancing GitHub Actions test matrices and worker allocation to parallelize long-running Playwright specs and eliminate CI bottlenecks
- Improved suite reliability by 15% by refactoring 10,000+ lines across the company-wide test repository, replacing legacy cookie-based auth, manual skip chains, and network-idle waits with shared fixtures and deterministic setup patterns

**Analyst Software Tester Intern | FNZ** **May 2025 – Aug 2025**

- Reduced pending retest backlog by 50%+ and unblocked team specific development by identifying 30+ platform bugs and validating 75+ fixes across staging and user-test environments using SQL, RabbitMQ, API logs, and Postman
- Improved all-round automated regression test accuracy by 18% by debugging 45+ Cypress test cases with JavaScript
- Revamped Client Onboarding QA by converting manual functionality coverage into an E2E test plan and automated Cypress test suite covering 10+ workflows, happy paths, edge cases, and core platform functionality
- Delivered signed-off requirements for the FNZ-BMO Fund Classification workflow by mapping 2 market-data XML feeds (Bloomberg, Morningstar) to database fields and authoring 6+ user stories for downstream fund calculations

**Data Analyst & Administrative Assistant | University of Toronto Engineering Career Centre** **May 2024 – Aug 2024**

- Presented PEY Co-op insights and concrete improvement steps to 15+ staff by analyzing 1,200+ survey responses with regards to student interests, industry preferences and service quality in Excel
- Produced Annual and Seasonal Recruitment Reports by analyzing 2,000+ Excel student records to identify hiring trends

## Projects

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**WearAlert | ESP32/ESP8266/STM32, Embedded C, Python, ESP-NOW, DAC/DMA** [Github](#) | **Apr 2025**

- Co-engineered Top 20-nominated WiFi-based fall-detection system using ESP32, ESP8266, and STM32 with dual-sensor fusion (BNO055 IMU, DPS310 barometer), achieving <100ms end-to-end latency and 9–10 Hz packet rate (2.3 kbps)
- Implemented STM32 embedded firmware in C using Keil and STM32CubeMX by configuring custom GPIO, UART, I2C, DAC, DMA, and timer pinouts, enabling 115200-baud UART packet parsing, OLED status output and audio alerts
- 3D-printed wearable headband enclosure in Onshape and soldered 2 perfboards for hardware integration

**Bread Crumb Trail | MakeUofT 2026 HW Hackathon, Winner | Arduino UNO Q, Python, C++** [DevPost](#) | **Feb 2026**

- Engineered a navigation and SOS system on Arduino UNO Q (AppLab), integrating GNSS/GPS (I2C), SSD1306 OLED (I2C), and a GSM/LTE cellular module (UART) to provide live coordinates and breadcrumbs to Streamlit dashboard
- Implemented cloud integrations: Twilio API for SOS SMS (compressed trail summary), Google Maps API for route/waypoint visualization, and Gemini API for interactive emergency guidance and breadcrumb-based path prediction
- Awarded the Qualcomm Sponsor Prize, Best Use of Arduino UNO Q (out of 260+ submissions)

**Radio Power Amplifier and Low-Pass Filter PCB | Altium, LTSpice, Soldering** [Github](#) | **Jan 2025 - May 2025**

- Constructed a Class E power amplifier and 7-stage maximally flat low-pass filter, obtaining 2.7W output power across antenna load (30dB gain) and 1.69% total harmonic distortion, meeting requirements for radio integration
- Designed a 2-layer PCB in Altium Designer for 16MHz and 60V operation, achieving 76% power efficiency
- Executed automated hardware unit testing using Python to interface with oscilloscope, DMM, and waveform generator

**B.O.B | MakeUofT 2025 HW Hackathon, 2x Winner | Arduino UNO R3, Sensors** [DevPost](#) | **Feb 2025**

- Developed a smart recycling bin that automatically opened/closed based on available capacity (ultrasonic, IR sensors) and determined recyclability using Gemini AI and OpenFoodFacts APIs
- Awarded Best Hack for Sustainability & Green Tech (out of 20+ teams) and Best .Tech Domain Name (out of 60+ teams)