SHIV PATEL

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Education

McMaster University **Hamilton, Ontario**

Bachelor of Engineering (B.Eng), Computer Engineering Co-Op *Sept. 2023 - Apr. 2028 (Expected)*

- Relevant Courses: Microelectronics, Microprocessor Systems, Data Structure & Algorithms, Principles of Programming, Design & Projects in Engineering, AI - Innovative Technologies,
- Clubs & Teams: MicroBuild Engineering Society (**Software Development Officer**), MacEng Ambassador Program (**Tour Guide**, **Computer Engineering Ambassador, Engineering Panelist**), DeltaHacks (**Participant**), McMaster Intramural League (**Game Day Supervisor** & **Participant**)
- Awards: McMaster Engineering Dean of Excellence Award (**$7500**), McMaster University Award of Excellence (**$3000**)

Experience

Systems Implementation Engineer (Co-Op) **April 2025 – Present**

Candor Industries Inc. *On-Site*

- Supported the migration from **legacy Bacon Software** to the **Arkeo MRP system**, focusing on workflows tied to **PCB manufacturing and inventory management**.
- Performed **process analysis and documentation** by mapping current PCB production workflows and identifying opportunities for optimization.
- Assisted with **data migration**, including **validation, cleansing**, and integrity checks of BOMs, supplier data, and production records.
- Contributed to the **implementation and setup** of Arkeo modules for **PCB production planning, procurement**, and **inventory tracking**.

VP Finance **May 2024 - Present**

McMaster Gujarati Students Association (MacGSA) *Hybrid*

- Managed over **$75,000 budget** using **Excel**, ensuring cost-effective allocation and adherence to financial plans.
- Handled **reimbursements and financial processes**, maintaining clear communication with the **McMaster Students Union (MSU)** for timely transactions.
- Secured **sponsorships and funding agreements**, increasing event funding by **20%** through strategic partnerships and ticket pricing.
- Provided **financial support** for GSA initiatives, ensuring accurate budget planning, expenditure tracking, and transparency.

Projects

Spatial Mapping System (LiDAR) **March - April 2025**

Embedded C, Assembly, MATLAB, Python, PyVista, TI MSP432E401Y, ToF Sensor, Keil uVision, AutoCAD *Academic Project*

- Developed an embedded system using a **VL53L1X ToF sensor** for high-precision **3D spatial mapping**.
- Programmed the **TI MSP432E401Y** in **Embedded C** and **Assembly**, integrating **I2C** and **UART** communication protocols for real-time data transmission.
- Built a **3D visualization pipeline** in **Python**, using libraries like **PyVista and numPy** for reconstructing scanned environments.

Single-Transistor Amplifier Design — GitHub **March 2025**

Digilent Function Generator, Oscilloscope, MOSFET/BJT, LTSpice *Academic Project*

- Designed and built an **amplifier** to deliver a **±0.5V** input with **10% or less attenuation** to a **100Ω load**, ensuring good linearity.
- Simulated circuit behavior in **LTSpice** and validated performance using an **oscilloscope** and **Digilent function generator**.
- Selected a **MOSFET/BJT** topology, optimizing **gain, impedance matching**, and **signal integrity** based on theoretical calculations and experimental results.

AC to DC Converter — GitHub **February 2025**

Analog Discovery 3, Oscilloscope, Agilent Function Generator, Electrical Components, LTSpice *Academic Project*

- Designed and built a **DC power supply** capable of delivering **10 mA at 3V ± 0.1V** from a **120V (rms) at 1 kHz** AC source.
- Implemented a **rectifier**, **filter**, and **regulator** to ensure stable DC output, considering voltage ripple and component ratings.
- Simulated circuit performance in **LTSpice** and validated results with **Analog Discovery 3**, **oscilloscope**, and **Agilent Function Generator**, ensuring design accuracy and efficiency.

Skills

Languages: Python, C/C++, Embedded C, Assembly, HTML/CSS, JavaScript, TypeScript, MATLAB, LaTeX, R, UML, Verilog (HDL), Swift

Frameworks/Libraries: Next, React, TailwindCSS, Pandas, PyVista, Matplotlib, yfinance, numPy, SwiftUI

Hardware: Arduino, Analog Discovery 2/3, Quanser Technologies, Microcontrollers/Microprocessors, FPGA, Oscilloscopes, Digital Multimeter

Tools: GitHub/Git, Figma, Quartus, KiCAD, OrCAD, LTSpice, Keil uVision, VS Code, XCode, Jupyter Notebook, Microsoft Office (Excel, Teams, Outlook, Word, PowerPoint), AnsysGranta, AutoCAD, PrusaSlicer

Certifications/Training: WHMIS 2015, First Aid & CPR/AED (Level C), safeTALK, AODA, Ontario G-Class License