Shiv Patel

+1 (647) 294-0235 pates302@mcmaster.ca shiv-sp shiv-sp www.shivpatel.vercel.app

Education

McMaster University **Hamilton, Ontario**

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

- Relevant Courses: Microelectronics I, Circuit Analysis, Microprocessor Systems, Data Structure & Algorithms, Principles of Programming, Design & Projects in Engineering, Engineering Communication, 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**)

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** for real-time data transmission.
- Built a **3D visualization pipeline** in **MATLAB** and **PyVista** for reconstructing scanned environments.
- Designed a custom **AutoCAD** mount for precise **ToF sensor** and **stepper motor** alignment.

AC to DC Converter — **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.

Finance Trend Plotter — **January 2025**

Python, Pandas, yfinance, Matplotlib, Jupyter Notebook, numPy *Personal Project*

- Developed a tool to fetch and analyze **stock data**, given dates and specific stock names via user inputs
- Using **yfinance** and visualized trends with **50-day and 200-day moving averages**.
- Created a production-quality plot with **Matplotlib**, including a professional title, labeled axes, and clear chart elements.
- Utilized **Jupyter Notebook** for interactive analysis and seamless integration of Python libraries like **pandas** for data manipulation.

Work Experience

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.

Living Learning Community (LLC) Community Advisor (LLC CA) **April 2024 - Present**

McMaster University - Housing & Conference Services (Residence Life) *Hybrid*

- Used **Excel, Teams, and Outlook** for budgeting, scheduling, and financial reporting.
- Processed and tracked **expenses and invoices**, ensuring proper allocation of funds and assisting in financial reconciliation for community events.
- Conducted **market research on vendors** to evaluate cost-effective event resources and manage data entry for event participation and expenses.
- Created event flyers and digital content using **Canva**, improving engagement by **25%** while maintaining accurate financial records for reporting.

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