Marisa Patel

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Education

McMaster University Hamilton, Ontario

Bachelor of Electrical Engineering *Sept. 2021 – May 2026 (Expected)*

- **Relevant Coursework**: Electronic Devices and Circuits, Microprocessor Systems, Logic Design, Electromagnetics, Signals and Systems, Principles of Programming, Energy Conversion, Communication Systems, Control Systems

Experience

Tutor and Data Entry Operator Oct. 2018 – Sept. 2021

Kumon *Hamilton, Ontario*

- Employed tailored instructional strategies to provide comprehensive academic support spanning from preschool to Grade 12, fostering proficiency in mathematics and reading comprehension through innovative teaching methodologies
- Conducted assessments and documented performance metrics to inform personalized learning plans
- Utilized proficiency in **Microsoft Excel** to meticulously manage and analyze student performance data, facilitating informed decision-making processes and enhancing program effectiveness

Projects

Spatial 360 Mapping | *C/C++, I2C/UART, MATLAB* Jan. 2023 – Apr. 2023

- Engineered data acquisition system using distance measurements for indoor mapping using a **MSP432E401Y Microcontroller**, **VL53L1X Time-of-Flight (ToF) Sensor**, and **MOT-28BYJ-48 Stepper Motor**
- Employed **C/C++** programming to seamlessly integrate the microcontroller and TOF sensor via **I2C/UART** communication, ensuring robust data acquisition and optimization of pin configurations for efficient data transfer
- Utilized **MATLAB** for 3D spatial visualization, enabling comprehensive analysis and mapping of scanned environment

Kitchen Cutting Device | *Autodesk Inventor, 3D Printing, Woodworking* Mar. 2022 – Apr. 2022

- Utilized **Autodesk Inventor** to design a kitchen cutting device with key ergonomic features, aiming to alleviate strain on a client diagnosed with Ehlers-Danlos Syndrome (EDS), a connective tissue disorder
- Led the manufacturing process, employing **3D Printing** and **Woodworking** techniques to construct the device

Recycling Sorting System | *Python, Autodesk Inventor, 3D Printing* Jan. 2022 – Mar. 2022

- Developed a **Python** system with integrated sensors **(IR, Ultrasonic, Colour)** within a robotic apparatus for the automated sorting of waste and recyclables from a hopper into designated bins within a controlled environment
- Designed a mechanism using **Autodesk Inventor** and **3D Printing** to facilitate hopper movement and material disposal

Remote Sensing Sterilization System | *Python, Quanser Interactive Labs, Raspberry Pi* Nov. 2021 – Dec. 2021

- Developed a **Python** code interfaced with a robotic arm in a **Quanser Interactive Labs** simulated environment, utilizing sensor emulator values to control tasks such as picking up, transferring, and dropping off containers with surgical tools
- Utilized a **Raspberry Pi** to demonstrate the integration and operation of the programmed robotic transfer system within the simulated environment

Leadership

McMaster Google Developer Student Club Sept. 2023 – Apr. 2024

Incubator Team Member

- Collaborated with diverse teams to advance projects for the Google Solutions Challenge 2024
- Orchestrated technical workshops and events, fostering an environment conducive to skill development and collaboration
- Organized McMaster GDSC's 1st Solution Challenge Hackathon

McMaster IEEE Sept. 2023 – Apr. 2024

Computer Chapter Member

- Participated in programming projects utilizing **Arduinos**, **Sensors**, **Keypads**, **LCDs**, and other hardware components
- Engaged in **Python** and **Soldering** workshops to construct systems and devices, leveraging theoretical knowledge to create tangible solutions

Technical Skills

Languages: Python, C/C++, JavaScript, HTML, CSS, MATLAB/Simulink, R, Verilog, Assembly
Developer Tools: GitHub, Visual Studio Code, Eclipse, Keil uVision, Quartus II
CAD: Autodesk Inventor, AutoCAD, PSpice, LTSpice
Hardware/Tools: 3D Printing, Soldering, Oscilloscopes, Breadboarding, Analog Discovery 2, Raspberry Pi, Arduino