Manjot Sodhi

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Education

McMaster University September 2021 - April 2026

Bachelor of Computer Engineering CO-OP *Hamilton, ON*

* Relevant Courses: Principles of Programming/Data Structures (C/C++), Logic Design (VHDL), Microprocessor systems, Digital System Design

Experience

Software Developer February 2025 - Present

RoboSub (Robotic Submarine Club) *Hamilton, Ontario*

* Engineering high-performance software pipelines that seamlessly integrate sensors, actuators, and processors; enhanced system responsiveness by 30% and improved data processing times for underwater applications.
* Designing object recognition systems utilizing machine learning techniques that improved the accuracy of identifying submerged items by 25%, leading to safer navigation in complex underwater terrains.

Data Analyst January 2025 - September 2025 & May 2024 - August 2024

Strive Capital Corporation *Toronto, Ontario*

* Analyzed over 1 million records from both PROD and UAT environments using custom SQL scripts, enhancing overall tracking efficiency by identifying discrepancies in broker performance reports.
* Created SSRS reports to track mortgage application statuses, broker performance, and loan amounts for over 1000 Brokerfirms with interactive elements like drill-down pie charts and parameter-driven filtering.
* Presented tailored reporting solutions directly to leadership teams, showcasing significant trends and providing targeted suggestions for optimizing broker performance metrics among over 1,000 firms.

Electrical Designer September 2024 - December 2024

Plans Group *Hamilton, Ontario*

* Engineered and coordinated electrical systems in Revit for the Scarborough Academy of Medicine and Integrated Health (SAMIH), achieving precise placement of 5000+ switches, conduits, whips, and junction boxes.
* Analyzed and rectified design conflicts by conducting detailed inspections of layers; validated over 15 elevation measurements with precision, guaranteeing compliance with established industry standards for electrical systems.
* Streamlined workflows by leveraging Revit shortcuts and tools like ALICE to efficiently navigate views, align systems, and generate documentation.

Projects

Hardware Implementation of an Image Decompressor

* Built a Verilog-based image decompression circuit on an Altera DE2 board, handling .mic12 images and tasks like YUV to RGB conversion, downsampling, DCT, and quantization
* Showcased the display of decompressed .mic12 images via VGA interface, contributing to a deeper understanding of digital signal processing and practical applications within hardware design projects.

Software Defined Radio

* Created real-time SDR for mono FM broadcast reception using Raspberry Pi 4 and RTL2832U RF dongles.
* Engineered signal processing for mono channel extraction, implementing low-pass filtering and decimation to achieve a 48 KSamples/sec output in 16-bit format.

3D Lidar Scanner

* Developed a 3D Lidar Sensor with TI MSP-EXP432E401Y, integrating ToF sensors via I2C/UART for environmental emulation.
* Implemented data processing with Python, utilizing Anaconda and Pandas libraries to enhance system accuracy and functionality.

Pacemaker Design and Implementation

* Created a device that monitors and regulates a patient's heart rate, and implemented stateflows for various pacemaker modes using Simulink, ensuring accurate and safe heart pacing based on programmable parameters.
* Designed a user-friendly interface for the Device Control Module (DCM) using Python, enabling seamless mode selection and parameter adjustments, enhancing user experience.

Technical Skills

Languages: Java, Python, C/C++, SQL, R, MATLAB, Verilog HDL

Software: Pspice, LTspice, Keil, uVision5, VS Code, Quartus II, AutoCAD, Revit, Tableau

Hardware: PLCs/Microcontrollers/Microprocessors, AD2 Board, Raspberry Pi, Arduino, 3D Printing

Other: Data Analytics, Machine Learning, Research, Database Management, Linux