Rohan Modi

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Education

University of Toronto Toronto, ON

- *Bachelor of Applied Science in Computer and Electrical Engineering* *Sep. 2022 – Apr. 2026*
- *Minors in Bioengineering & Artificial Intelligence*

Relevant Courses: *Digital Systems, Computer Organization, Digital Electronics, Introductory Electronics, Computer Fundamentals, Applied Fundamentals of Deep Learning, Software Design & Communication, Programming Fundamentals*

Projects

Music Player | *JavaScript, Node.js, HTML, CSS, YouTube API, HTTP requests, REST API* Jul. 2024 – Present

- Developed a full-stack web app with live communication and HTTP requests between server and client-side script
- Implemented functions for shuffling playlists, rearranging the song queue, and searching by name and artist
- Controlled a browser that allows users to search for songs directly in YouTube and add them to their library

Stock Trader Algorithm | *Python, Selenium, macOS / Linux, Terminal / Shell, GitHub* Jun. 2024 – Present

- Created a Selenium-based browser simulator for automated page navigation, login, setup, and automated web scraping to retrieve data such as trade volume. Wrote algorithm that analyzes data to evaluate risk of trades

Waste Image Classifier | *Python, PyTorch, NumPy, TensorFlow, Matplotlib* Jun. 2024 – Aug. 2024

- Designed a deep learning neural network incorporating convolutional layers, inverted residual blocks, skip connections, and a fully connected classifier to identify waste types, including glass, metal, and clothing
- Trained the network on a database of over 15,000 images and 12 different classes, achieving a test accuracy of 75%, relative to 40% accuracy of baseline model that implements the VGG16 architecture

FPGA Run Two Player Racing Game | *DE1-SoC board, C, PS2 keyboard, speakers, VGA, GitHub* Apr. 2024

- Developed a two-player split-screen racing game in C for the DE1-SoC FPGA board
- Integrated buttons, switches and PS2 keyboard input, transmitting visual and audio output to VGA, LEDs, and speakers, with animations, power-ups, and split-screen scrolling for two players

Geographic Information System (GIS) | *C++, Unix / Linux, Git, OSM database, XML* Jan. 2024 – Apr. 2024

- Designed a mapping application with real data from the OpenStreetMap (OSM) database to map cities globally
- Applied Dijkstra's algorithm, 2-opt, and simulated annealing to the traveling salesman problem for optimal routes

Game Development (Example Project Listed) | *Python, JavaScript, GitHub, HTML, C, Verilog* 2018 – 2024

- A platformer where players dodge bombs, collect stars, and shoot fireballs to advance through levels

Digital Circut Tic-Tac-Toe Bot | *DE1-SoC, Verilog, PS2 keyboard, ModelSim, DO files* Nov. 2023 – Dec. 2023

- Developed FSM based digital logic circuit in Verilog to respond to user input and play Tic-Tac-Toe
- Simulated digital circuit to test FSM logic in ModelSim and deployed on DE1-SoC board

Work Experience

Lifeguard and Swim Instructor Roles August 2022 – August 2024

University of Toronto | City of Brampton | Making Waves Swim School *Brampton, ON | Toronto, ON*

- Passionately guided students of all ages, inspiring confidence, motivation, and growth
- Rapidly responded to emergencies and delivered first aid to ensure the safety of hundreds of students and patrons

Assistant To The Executive Director June 2021 – June 2022

Mennonite New Life Centre Of Toronto *Toronto, ON (Hybrid)*

- Designed and implemented inventory data tracking system using Microsoft Excel

Technical Skills

Languages: JavaScript, Python, C, C++, HTML, CSS, MATLAB, NIOS II Assembly, Verilog (HDL)
Frameworks: RESTful API, Node.js, Express.js
Developer Tools: Git, GitHub, PostgreSQL, pgAdmin, Visual Studio Code, pip, npm, Postman, Chrome DevTools, Bash, JSON, Make, Linux development environment, Shell
Libraries: Pytorch, TensorFlow, NumPy, Matplotlib, Selenium, GTK
Hardware Validation: ModelSim, DO files, Verilog testbench, SPICE Simulation (LTspice), static timing analysis
Digital/Logic Circuit Design: FSM, gates, registers, flip flops, latches, analog and digital transistor device behavior
Skills: Development & debugging in Linux & Windows environments, CMOS design, RTL design, firmware development