

Rohan Modi

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EDUCATION

University of Toronto

Toronto, ON

- Bachelor of Applied Science in Computer and Electrical Engineering
- Minors in Bioengineering & Artificial Intelligence

Sep. 2022 – Apr. 2026

Relevant Courses: Algorithms & Data Structures, Software Design & Communication, Programming Fundamentals, Computer Fundamentals, Applied Fundamentals of Deep Learning, Computer Organization, Digital Systems

TECHNICAL SKILLS

Languages: JavaScript, Python, C, C++, SQL, HTML, CSS, MATLAB, NIOS II Assembly, Verilog

Developer Skills & Tools: Docker (microservices methodologies), PostgreSQL (relational DBs), pgAdmin, GitHub, Git, Visual Studio, Unix / Linux, Postman, Express-rate-limit, bcryptjs, Bash, CSV, JSON, RegEx, REST API, HTTP

Libraries, Frameworks, & Runtimes: ReactJS, NodeJS, ExpressJS, Pytorch, TensorFlow, NumPy, Matplotlib

PROJECTS

Vaultify | JavaScript, NodeJS, Docker, PostgreSQL, ReactJS, Git, Express-rate-limit, bcryptjs Jan. 2025 – Present

- Developed a secure password vault implementing hashed password storage, .env file protection, secure database connections, input sanitization to prevent SQL injections, password complexity checks, and API rate limiting
- Developed a full-stack application with a ReactJS frontend, NodeJS backend, PostgreSQL persistence layer, and utilizing a scalable microservices architecture with Docker for efficient user authentication and data management

TubeTunes | JavaScript, NodeJS, HTML, CSS, ExpressJS, HTTP requests, REST API, JSON Jul. 2024 – Present

- Developed a full-stack app with live HTTP requests between NodeJS backend 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

Surge Trader | Python, NumPy, Matplotlib, Selenium, macOS Terminal, GitHub Jun. 2024 – Present

- Created a Selenium-based browser simulator for automated page navigation, login, setup, and web scraping
- Retrieved data such as trade volume and financial news externally to analyze market volatility and trade risk
- Tracked live data, fitted polynomial to data points, and analyzed derivatives of graph to assess market momentum

Eco Sort | Python, PyTorch, NumPy, TensorFlow, Matplotlib Jun. 2024 – Aug. 2024

- Designed a neural network incorporating convolutional layers, inverted residual blocks, skip connections, dropout layers, gradient based optimization, and a fully connected classifier to identify waste types, such as glass and metal
- Trained the network on a database of over 15,000 complex images and 12 different classes, achieving a test accuracy of 75% in 30 epochs, relative to 40% accuracy of baseline model that implements the VGG16 architecture

Two Guys Racing Forever | Embedded C, DE1-SoC board, PS2 keyboard, speakers, VGA, GitHub Apr. 2024

- Developed a two-player split-screen racing game with keyboard input, and synchronized animations and audio in C
- Integrated buttons, switches, and split-screen scrolling for both players using embedded C and hardware interrupts

RescueMap (GIS) | C++, Unix / Linux, Git, OSM (OpenStreetMap) database, XML Jan. 2024 – Apr. 2024

- Developed first-responder mapping app using real data from OSM database for cities such as Toronto and Tokyo
- Designed a dual-mode interface tailored for firefighters and paramedics, dynamically displaying critical information from public APIs such as the nearest fire hydrants, hospitals, and building floor counts based on user mode
- Implemented Dijkstra's algorithm, 2-opt, and simulated annealing, to plot optimal routes for emergency scenarios
- Optimized performance and UI responsiveness with C++ Standard Library data structures (e.g. unordered maps) to preload and manage large datasets, and accelerated computations to reduce latency through multithreading
- Communicated and collaborated with engineering team and with management on UI choices and code development

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 from infant to adult, inspiring confidence, motivation, growth, and skill development
- 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)

- Developed and implemented data tracking and management system in Microsoft Excel to facilitate office relocation