Huda Halani

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Education

University of Toronto Toronto, ON, Canada

Bachelor of Applied Science (BASc) in Computer Engineering + PEY Co-Op *September 2023 – April 2027*

Relevant Coursework

Programming Fundamentals (C, C++), Digital Systems (FPGA, Verilog, ModelSim, Quartus), Computer Organization (Embedded C, Assembly), Engineering Strategies and Practices (AutoCAD), Software Design and Communication (C, Git)

Technical Skills

Languages: Python, C/C++, HTML/CSS, JavaScript, MATLAB, Verilog, Nios-V Assembly

Frameworks: React, Node.js, Material-UI

Developer Tools: Git, VS Code, Quartus Prime

Technology: GTK, OpenGL, OpenStreetMap API, OpenAI, DNS, GCP, Vercel, Clerk, Stripe, Firebase

Experience

Headstarter AI Intern June 2024 – August 2024

Hybrid *Toronto*

- Programmed and published a portfolio website using **HTML/CSS** to publicly showcase personal projects
- Programmed an Ontario Universities aid chat bot, "Rate my Professor" interface, and custom flashcard generator using multiple **AI developer tools (OpenAI API, etc.)**, accumulating **30+ total users**
- Created a customizable pantry list application using **Next.Js** and **Firebase**, deployed with **Vercel** for high scalability

Computer/FPGA Programmer January 2024 – April 2025

University of Toronto *Toronto*

- Programmed terminal-based versions of Reversi and Word Search in **C** using **array structures** and the **standard string.h library**
- Utilized **OOP classes and inheritance** in **C++** to develop a frame-by-frame, terminal-based version of Pong
- Designed and developed an interactive IQ tester game on the **DE1-SoC FPGA** board in **Verilog HDL** for local player use, utilizing a **PS2 keyboard** for user input, a finite state machine to manage game logic, and a **VGA module/adapter** for graphics output
- Created a fully interactive, dynamic Ping-Pong game in **embedded C** for the **Nios-V processor**, implementing PS2 keyboard input and real-time graphics rendering using VGA display

Project Manager September 2023 – January 2024

University of Toronto - Engineering Strategies and Practices *Toronto*

- Developed a viable solution to prevent corrosion in concrete parking blocks upon client request
- Created a **CAD model** for proposed solution in **Fusion 360**, conducting stress analysis tests to verify prototype functionality
- Ensured everyone remained on track and aligned with project objectives by honing teamwork, responsibility, organization, and leadership skills

Projects

Interactive Navigator Map | *C++, GTK, OpenGL, Git* January 2025 – April 2025

- Collaborated in a group of three to design a **GIS-based map** application with interactive zoom/search features and graphical rendering using **GTK/OpenGL**
- Managed large-scale collaboration and version control using **Git** and **GitHub**
- Implemented **A* algorithm** to determine and display minimum-distance paths between locations, achieveing a total runtime of $<$ **15ms**
- Solved a real-world Traveling Courier Problem using multiDijkstra, greedy heuristics, 2-opt, and simulated annealing to optimize delivery routes for couriers