MAHIR KHANDAKER

COMPUTER ENGINEERING STUDENT AT UNIVERSITY OF TORONTO

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PROFESSIONAL EXPERIENCE

SnapShip Solutions July 2022 - Present

Founding Fullstack Engineer

I demonstrated exceptional leadership by overseeing the development process of a full stack web application. Using Github, we programmed a **React frontend** and **Express RESTful backend** deployed on Vercel and Firebase Functions. We used tools such as Google Drive, Notion and Linear to manage the team and track progress on tasks in 2 week development cycles.

- Developed a web application for a tech-based startup focused on helping small businesses access discounted couriers pricing.
- Created a frontend application using **React and Typescript** with Shadcn/UI components, building over 70 customs components over 14 pages.
- Used **Express with Typescript** to create a backend REST API server.
- Integrated **REST** and **SOAP-WSDL APIs** from FedEx, UPS, GLS and Purolator for users to create, track and cancel shipments and pickups.
- Developed a billing process using Stripe APIs that includes invoicing and refunds.
- Used Zustand for State Management and Zod for Schema Validation with React-Hook-Form.
- Worked with Firebase Functions, Authentication, and Firestore to store and manage user data for around 200 active customers.
- Implemented responsive designs in created in Figma
- Collaborated with a technical advisor to create unit tests for code using Jest

EDUCATION

University of Toronto, Toronto, ON September 2023 - April 2028 (Present)

Bachelor of Applied Science and Engineering - Computer Engineering + PEY CO-OP

- **Relevant Courses:** Fundamentals of OOP (C++), Fundamentals of Computer Programming (C), Digital Systems, Introductory Electronics, Circuit Analysis, Computer Organization (RISC V Assembly and C), Hardware Design and Communication

Western Technical Commercial School September 2019 - June 2023

Ontario Secondary School Diploma + Robotics and Informational Technology SHSM Certification

- Student Council President for 2 years
- Director of Operations for WARP7 Team 865 - FIRST Robotics for 4 years

PROJECTS

Limiter, RX Filter, and Quadrature Mixer - Flexible Radio Transceiver Subsystem January 2025 - April 2025

University of Toronto - Faculty of Engineering

In a group of 3, we were assigned to build a subsystem for a flexible radio transceiver (FLRTRX) so that the radio can limit the input and mix the signals together. In a 4 month period, we created, designed and tested 4 circuits; a limiter, an RX passive bandpass filter, Gilbert Cell RX mixer, and a lowpass active filter, for compatibility with the FLRTRX.

- Created a PCB design in Altium Designer connecting over 50 surface and through hole components
- Build circuits on breadboard using diodes, capacitors, inductors, MOSFETs, and Opamps and soldered all the components onto the PCB
- Wrote unit testing scripts in Python to simulate inputs and plot outputs to fulfill requirements needed by the radio

Pokemon Battle Simulator – NIOS V Computer System Project January 2025 - April 2025

University of Toronto - Faculty of Engineering

- Designed a **successful game using C** playable on a NIOS V computer system, utilizing a hardware timer, DAC and a video controller for gameplay
- Used a Raspberry Pi to connect the remote and send commands using the GPIO pins on the Pi board and read the GPIO ports on the computer system to handle inputs to control the characters on the screen.
- Created multiple Matlab scripts to convert assets and audio files into hexadecimal C arrays in separate header files
- Implemented gameplay logic using structures and objects

Tile Smasher – FPGA Verilog Board Project September 2024 - December 2024

University of Toronto - Faculty of Engineering

- Designed and implemented a **successful game using Verilog** to implement on a DE1-SoC board, utilizing multiple FSMs for user input, display and audio
- Created a digital circuit to generate inputs and compare PS2 keyboard inputs
- Displayed gameplay using objects from memory on VGA and output audio using an audio controller by reading notes from memory
- Simulates verilog modules using Modelsim by creating testbench files

SKILLS AND STRENGTHS

- **Languages:** C, C++ (OOP), Python, PHP, Java, TypeScript, JavaScript, HTML, CSS, Verilog
- **Frameworks:** jQuery, React, Express, pandas, Flask, Tailwind CSS, Next.js
- **Technologies:** Git, Firebase, MySQL, PostgreSQL, GitHub
- **Tools:** Altium Designer, KiCad, Fusion 360, SolidWorks, OnShape, LTSpice
- Strong problem-solving mindset – adept at developing logical and innovative solutions
- Quick and adaptable learner – able to acquire new skills efficiently in dynamic environments
- Highly organized with exceptional time management – balancing academics and work effectively
- Strong communication & leadership – thrives in team settings and takes initiative when needed

References are available on request.