Ali Taha

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Technical Skills

Languages: Java, C, C++, Python, HTML/CSS, JavaScript, VHDL, SQL, Chef, Bash
Frameworks/Tools: FreeRTOS, GTest, Linux, GNU (GCC, Make, GDB), CMake, Git, Jira, Confluence, MongoDB, Node, Vue, PostgreSQL
Protocols: SPI, I2C, UART, CAN, TCP/IP

Experience

Firmware Team Core Member **July 2023 – Present**
UW Orbital, CubeSat design team *Mississauga, Ontario*

- Developed real-time software and device drivers in **C** using **FreeRTOS** to run on a TI RM46 microcontroller.
- Utilized embedded systems development expertise to configure responsive **OS interrupt handling** for the LM75BD temperature sensor, ensuring mitigation of over-temperature shutdown (OS) events.
- Implemented **I2C**-based sensor driver functions, **UART** data transmission, and dynamic **queue** systems.

Automation Developer Co-Op **May 2023 – August 2023**
Blackberry *Waterloo, Ontario*

- Developed the SVC Project, leveraging **VueJs, NestJS, and NodeJS** to create a user-friendly interface and a robust back-end API. Utilized **PostgreSQL** for efficient data management and integrated security measures.
- Enhanced user experience through dynamic search functionality and optimized SQL queries. Automated data retrieval achieved a **75%** reduction in processing time by shifting to JIRA DB, utilizing **Node.js scripts**, and **Chef**-managed **cron jobs**.
- Wrote **Python scripts** for automated email notifications on **PostgreSQL database changes**, improving Changed Management communication. Asynchronous notifications were sent in **under 2 seconds**, optimizing responsiveness.

Firmware Developer **October 2022 – May 2023**
Waterloo Formula Electric Design Team *Waterloo, Ontario*

- Resolved over **3 linter** tasks and tracked team progress using industry standard tools like **Bitbucket** and **Jira**.
- Implemented **low-level** hardware control using **C**, including adding 8 new **events warnings** for battery states.

Front-End Developer **January 2021 – June 2022**
Enginera *Mississauga, Ontario*

- Increased daily page visit count by **60%** by implementing interactive forms, navigation and dropdown menus.
- Used **HTML**, **CSS**, and **JS** to implement responsive design for over 3 different screen sizes and increase mobile traffic.

Programming Team Lead **Spetember 2020 – April 2022**
FIRST Robotics Team *Mississauga, Ontario*

- Awarded as **District Event Winner**(2022), and **District Event Finalist** by University of Waterloo.
- Managed a codebase and collaborated with over **12 developers** using **Git** to assign tasks and track code changes.

Projects

LikeIt Social Media Web App | *HTML, CSS, JavaScript, Nodejs* **December 2022**

- Implemented server-side infrastructure using **Node.js**, ensuring efficient handling of high data and user traffic.
- Instated a **storage** solution for user data, such as profiles, posts, and likes utilizing **MongoDB** as the database.
- Integrated real-time updates and user interactions using **Express.js** for routing and handling HTTP requests.
- Maintained **privacy** features by implementing **JWT** authentication and using the **bcrypt** library to **hash** passwords.

Dogsitter: Hack The North Project | *HTML, CSS, JavaScript, Ruby* **September 2022**

- Collaborated with **three** others in a **team** to create a dog-sitting **full stack** website in under **36 consecutive** hours.
- Implemented over **6 interactive features** using **REACT**, including smooth scrolling and a search bar.
- Developed a method for user data storage using **Ruby on Rails**, connected to a **MySQL** and **SQLite** database.

CubeSat Thermal Management | *C, FreeRTOS* **October 2021**

- Successfully integrated a minimal thermal management system, showcasing proficiency in hardware communication protocols, including **SPI, I2C, and UART**, and **real-time task synchronization**.
- Leveraged cross-platform compatibility tools including **WSL2**, **CMake**, **GCC** to establish a streamlined development environment across Windows, MacOS, and Linux platforms, expediting project setup **by 20%**.

Education

University of Waterloo **Sep. 2022 – May 2027**
Candidate for Computer Engineering Honours, Co-operative Program *Waterloo, ON*