

ALI TAHA

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Technical Skills

Languages: Java, C, C++, Python, HTML/CSS, JavaScript, VHDL, SQL, Chef, Bash

Frameworks: FreeRTOS, Node, Vue, RESTful APIs

Tools: GNU (GCC, Make, GDB), GTest, Linux, PostgreSQL, CMake, Git, Jira, Confluence, MongoDB, WSL

Certificates: Loran Scholar Citation (1 of 60 worldwide), Trustee's and Joe Hugel Award:(99%) average, Harvard CS50x

Experience

Blackberry

May 2023 – August 2023

Automation Developer Co-Op

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 and 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 Change Management communication. Asynchronous notifications were sent in **under 2 seconds**, optimizing responsiveness.

UW Orbital, CubeSat Design Team

July 2023 – Present

Firmware Team Core Member

Waterloo, Ontario

- Created real-time software and device drivers for a **TI RM46** microcontroller using **C** and **FreeRTOS**.
- Configured responsive **OS interrupt handling** for Temperature Sensors like the LM75BD, ensuring mitigation of over-temperature shutdown events.
- Implemented over **5 I2C**-based sensor driver functions and facilitated **UART** data transmission.
- Integrated **TCP/IP** stack for network communication and designed dynamic **queue** systems.
- Architected and integrated a unified system-wide logging mechanism across diverse software components, ensuring consistent error code handling and streamlined logging for enhanced system reliability in embedded systems.

Waterloo Formula Electric Design Team

October 2022 – May 2023

Firmware Developer

Waterloo, Ontario

- Resolved over **3 linter** tasks, rebased the codebase, and tracked team progress using **Bitbucket** and **Jira**.
- Implemented safety and battery failsafe detection for **8** unique events in **C** on an STM32 Microcontroller.

Enginera

January 2021 – June 2022

Front-End Developer

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.

FIRST Robotics Team

Spetember 2020 – April 2022

Programming Team Lead

Mississauga, Ontario

- Awarded as **District Event Winner**(2022), and **District Event Finalist** by University of Waterloo.

Projects

🐙 CubeSat Thermal Management | C, FreeRTOS

August 2023

- 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%**.

🐙 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.

🐙 Dog sitter: 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.

Education

University of Waterloo

Sep. 2022 – May 2027

Candidate for Bachelor of Applied Science : Computer Engineering Honours

Waterloo, ON