David Wang

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Languages: C, C++, Python, JavaScript, Java, HTML, CSS, VHDL, SQL
Technologies: Intel Quartus, Altium, AWS, Azure, React, Tensorflow

WORK EXPERIENCE

FULL STACK DEVELOPER | Alcumus
Jan 2022 – Apr 2022 | Toronto, ON

- Integrated NX build system to reduce latency of pre-commit hooks by an average of **70%**
- Implemented password update flow for individual user accounts using Azure AD B2C custom policies
- Bolstered security of API endpoints by introducing conflict handling to prevent data collisions

IOT SYSTEM DEVELOPER | Microgreen Solar
May 2021 – Aug 2021 | Richmond Hill, ON

- Built React app used by **500+ customers** for user-friendly remote monitoring and control of off-grid solar systems
- Automated real-time data reception, created overlaying plots, and powered a registration service with AWS Lambda
- Designed GUI with capabilities to override default generator behaviour and configure voltage range of operation

DATA ANALYTICS DEVELOPER | Solara Data
Sep 2020 – Dec 2020 | Winnipeg, MB

- Developed a **UART** driver in C for the MSP430 microcontroller that reads satellite data to locate users in remote locations
- Built a Dash application in Python to analyze lake data from IoT sensors for sustainable development research
- Created real time forecasts and anomaly detection capabilities with the ARIMA model and the Facebook Prophet library

EXTRACURRICULARS & PROJECTS

FIRMWARE DEVELOPER | Waterloo Aerial Robotics Group
Oct 2021 - Present | Waterloo, ON

- Implemented **SPI** driver to toggle motor speed by interpreting an analog signal to set the desired duty cycle
- Embedded live stream of robot view to React app by integrating a Raspberry Pi camera module

OPENBOT ONLINE
Jan 2021 - Aug 2021 | Waterloo, ON

- Built a miniature car that can be remotely controlled anywhere through the internet
- Utilized **I2C** communication, the MQTT IoT messaging protocol, React, Arduino, and Raspberry Pi

ULTRASONIC RADAR
Sep 2019 - Dec 2019 | Waterloo, ON

- Developed a graphical user interface that visualizes objects detected by a semicircular radar
- Utilized the UART protocol, object oriented programming, and string buffering through the serial monitor
- Built with the Processing IDE, Ultrasonic Sensor (HC-SR04), and Arduino Uno

EDUCATION

UNIVERSITY OF WATERLOO | BASc in Computer Engineering
Expected 2024 | Waterloo, ON

- Relevant coursework: Embedded Microprocessor Systems, Digital Computers, Algorithms and Data Structures (C++), Systems Programming & Concurrency (C), Fundamentals of Programming (C++), Electronic Circuits
- Clarinetist for University of Waterloo Concert Band Club

Hobbies/Interests: Reading, speed-cubing, video games, skiing, playing music