David Wang

www.github.com/enjineerMan | d352wang@uwaterloo.ca | www.linkedin.com/in/david-wang493

EDUCATION

UNIVERSITY OF WATERLOO | BASc in Computer Engineering   Sep 2019 - May 2024 | Waterloo, ON

- Relevant coursework: Software Architecture (Kotlin), Distributed Computing (Java), Programming for Performance (Rust), Algorithms and Data Structures (C++), Systems Programming & Concurrency (C), Real-time Operating Systems (C), Fundamentals of Programming (C++), Database Systems
- Clubs and societies: Waterloo Aerial Robotics Group, UW Effective Altruism, UW Concert Band Club

WORK EXPERIENCE

SOFTWARE ENGINEER INTERN | MDA Space   Jan 2023 – Apr 2023 | Brampton, ON

- Built a **Jenkins** CI pipeline to automate regression tests for **Canadarm2** flight software, reducing verification time by **85%**
- Designed a proof of concept **C++** data analysis library on the QNX operating system to predict mechanism failure
- Supported migration of **SQL** Server database by writing a **Perl** script to verify files generated by upgraded systems
- Drafted test plan documents for complete coverage of Canadarm2 automation scripts

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

- Integrated NX build system to **reduce latency** of pre-commit hooks by ~**88%** to save developer time
- 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 SOFTWARE DEVELOPER | Microgreen Solar   May 2021 – Aug 2021 | Richmond Hill, ON

- Built **React** app used by **1000+ monthly** customers for 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 for customers to configure solar power generator when away from home using Material UI and MQTT

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

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

EXTRACURRICULARS & PROJECTS

FIRMWARE DEVELOPER | Waterloo Aerial Robotics Group

- Developed interchip communication of sensor fusion data to facilitate PID tuning of aircraft position
- Calibrated and configured magnetometer on BMX160 IMU for position and attitude calculations
- Wrote and integrated ultrasonic driver for takeoff and landing capabilities

SPACEAPPS HACKATHON | 1st place

- Created machine learning program in **Python** that predicts forest fires globally using provided CSA datasets
- Trained a model using a decision tree classifier with **78%** accuracy, and validated using K-fold cross-validation
- Visualized a Real-time Chloropleth map of carbon monoxide using the Cartopy library

HACK THE MUSIC

- Built MP3 to sheet music converter with React and external **REST APIs** to extract tempo information
- Implemented the ABC notation generation algorithm to convert MIDI data into human-readable musical notation
- Utilized **Firebase** for user authentication and data storage for secure storage of music data

LANGUAGES: C++, C, TypeScript, JavaScript, Python, Java, C#, Kotlin, Perl, SQL
TECHNOLOGIES: React, Node, Express, AWS, Azure, Dash, Jenkins