Owen Brake

Waterloo Mechatronics Engineering · **OwenBrake.com** · (647)548-5493 · obrake@uwaterloo.ca

Work Experience

Embedded Firmware Engineer — Winter 2021
Apple — Remote

- Specific features are currently redacted to preserve confidentiality

Software Engineer — Summer 2020
Ford Motor Company — Remote

- Worked on system to process vehicle core dump files into easily readable, accessible and shareable online formats using GDB and Java
- Rewrote permissions system to enable complex and nested conditions while maintaining performance on system with over 1 billion database records in Java and SQL
- Revamped vehicle file text editor to enable split screen, persistent session behaviour and numerous UX improvements in JS

Full Stack Developer — Summer 2019
Groupdesk — Toronto, ON

- Developed CRUD services, using Angular to remove user dependence on technicians
- Automated front end QA using Go, Docker and Chromedp to increase release efficiency and stability

Data Entry — Fall 2016
Liberty Metrics — Mississauga, ON

- Online data mining and compiling of hotel booking data

Projects and Teams

Waterloo Formula Electric Team (Head of Firmware) — September 2019 - Present

- Designed and implemented firmware for ARM Cortex-M7 and M0 boards in FreeRTOS and C which communicate on the CAN bus
- Developed sensor analytics platform on Python for Beaglebone to measure and visualize live vehicle performance remotely
- Worked on drivers for the various sensors and external boards on the car like: LTC6812, LTC6811, LTC4110, etc.

Flatten.ca, COVID-19 Analysis Platform — March 2020 - May 2020

- Developed and scaled web service to analyze geographic trends in COVID-19 across Ontario, handling 400,000+ users using the MERN stack
- Featured on various Canadian news outlets including: CBC, CTV, Globe and Mail, Toronto Star

Isidore, Custom Programming Language — December 2019 - July 2020

- Deployed JIT compiled, cross platform programming language built in LLVM using C++.
- Designed language to solve many of the runtime safety problems of C while retaining minimum overhead and lightning fast runtime performance

Self Driving Go Kart — June 2019 - August 2019

- Utilized Arduino, motor controllers and RC radio to allow remote control of Go Kart.
- Produced computer vision and control software in OpenCV and Python

Skills

Programming Languages:	C, C++, Verilog, VHDL, ARM Assembly, Go, Python, Java, MERN/LAMP Stack
Software:	FreeRTOS, LLVM, Git, STM32CubeMX, PID, GDB/LLDB, MATLAB, SQL
Electrical:	Soldering, Circuit Design, Signal Analyzers, I^2C, SPI, UART, CAN, ARM Cortex-M