

JEREMY PHY

3A Mechatronics Engineering at University of Waterloo

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LANGUAGES

C/C++

Java

CSS

HTML

VHDL

Matlab

PROTOCOLS

I2C

SPI

UART

Bluetooth LE

TOOLS

CubeMX

IAR Workbench

Git Fork

TortoiseSVN

Oscilloscope

Agile

SKILLS

Embedded Development

Signal Analysis

Firmware Debugging

INTERESTS

Video Production

Skateboarding

Formula 1

EXPERIENCE

Software Developer Siemens Healthineers Inc.

Sep - Dec 2021

- Programmed **camera module** using STM HAL libraries (DCMI, DMA) for capture and decoding of 2D-barcode image
- Created inter-core signal system with semaphore IRQ for asynchronous operation on **dual-core STM** processor (32-bit)
- Updated **Bluetooth firmware** using proper module configs (Microchip BM78) for Low-Energy User-Confirm Pairing
- Debugged control board firmware to assist hardware team's prototype development

Embedded Software Developer PerkinElmer, Inc.

Jan - Apr 2021

- Implemented **RS485-to-SPI transceiver** in C++, for communication between existing hardware and new motor control system
- Installed **evaluation hardware** for MCU (ATMega328) and transceiver (MAX485) on a mass spectrometer for successful concept validation
- Collaborate with Sr. electrical designer to produce **circuit schematics** for production

Embedded Software Developer PerkinElmer, Inc.

May - Aug 2020

- Developed 3-axis motion **control system** using PowerSTEP01 controller for accurate calibration of mass spectrometers sample injector
- Programmed **SPI transfer** framework with C, allowing for X/Y/Z/Pump motor control with single daisy-chained connector
- Integrated motor controllers into an existing hardware system, saving up to **\$500/unit** in production costs

PROJECTS

Project Cerberus A prototype 3-wheeled robot

Winter 2021

- Designed triangle-style chassis to support 3 omni-directional wheels
- Programmed **control software** with Arduino for obstacle detection and navigation

Personal Website jeremyphy.github.io/

Winter 2020

- Created site layout using HTML and CSS for an intuitive user experience
- Implemented Bootstrap 4 framework for accessible viewing on desktop and mobile devices

EDUCATION

Candidate for BAsC. - Mechatronics Engineering

University of Waterloo

2019–2024
(expected)

Talented Offerings for Programs in the Sciences (TOPS)

Marc Garneau C.I.

2015–2019