JEREMY PHY

Mechatronics Engineering Student at University of Waterloo

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github.com/jeremyphy

SKILLS

Object Oriented Design

Debugging | Soldering

Electronic Prototyping

TOOLS

C/C++ | Java | Git

HTML | CSS | Linux

Java AWT | Bootstrap 4

EDUCATION

BASc. in Mechatronics Engineering

University of Waterloo

GPA: 79.9% *2019–Present*

TOPS (Talented Offerings for Programs in the Sciences)

Marc Garneau C.I. *2015–2019*

INTERESTS

Filmmaking

Skate / Longboarding

Basketball

EXPERIENCE

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 ATMega328 Microcontroller and MAX485 Transceiver 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

Electrical Engineering Intern — Sunnybrook Research Institute — Jul - Aug 2018

- Developed Bash script for **Linux**-based microcontroller, capable of applying a reflow heat profile in under 5 minutes
- Built an **automated** solder reflow oven from existing chassis, capable of a peak internal temperature of 235°C
- Presented successful project results to leading Focused Ultrasound (FUS) researcher Kullervo Hynynen, Ph.D. and audience of 40+ researchers

PROJECTS

Project Cerberus — A prototype 3-wheeled robot — Winter 2021

- Design triangle-style chassis to support 3 omni-directional wheels
- Program **control software** with arduino for obstacle detection and **autonomous navigation**

Personal Website — Jeremyphy.github.io/ — Winter 2020

- Created site layout using HTML and CSS for a purposeful and intuitive user experience
- Implemented Bootstrap 4 framework resulting in accessible viewing on both mobile and desktop devices

ACHIEVEMENTS

Merit Award — Merit Bursary Program — 2019
- For 'exceptional community contributors'

Young Scholar Award Finalist — Young Scholar Foundation — 2018
- For 'demonstrating exemplary leadership'

Champions & Best Engineering Award — OTU Sumobot Engineering Comp. — 2018
- The best performance overall, out of 58 teams