Morgan Yeung

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Skills

Languages

Python

C/ C++

LabVIEW

SQL

HTML5/CSS3

Hardware

ATmega/ STM32 MCUs

ARM CPUs

Serial, I2C, UART Communication

CAN, LIN Communcation

Actuators

Sensors

Technologies

Git

JIRA

3D printers

Solidworks

Altium

Education

University of Waterloo

B.Asc. Honours Mechatronics Engineering

Graduating April 2021

Personal Website

morganyeung.github.io

Interests & Activities

Fitness

Photography

Professional Experience

Embedded Software Engineer **Formlabs (Jan 2019 - Apr 2019)**

- Programmed calibration routines in **Python** for the Form3 to ensure high-quality printer assembly, with smart workflows using sensor inputs to reduce cognitive load, user error and cycle times
- Measured and recorded the tilt about the Z axis in the Form3 tower to apply offsets while printing to ensure quality prints across the build volume
- Measured critical printer dimensions that defined the build plane then created and validated a workflow to rework printers to meet specifications
- Oversaw the IQC of printers by collaborating with several teams to corroborate specifications and calibrations for print quality, resulting in reduced precision errors.
- Developed **Python** scripts to pull data from SQL database to compare and analyze calibrations between printers using various jigs

Hardware Manufacturing Engineer **Formlabs (Jan 2018 - Aug 2018)**

- Designed and built machines, testers and calibration fixtures and jigs for the Form2, Form3 3D printer and other auxiliary devices
- Programmed the hardware above to meet functional requirements and ensured international accessibility through ease of use
- Designed an **Atmega 328P** pneumatic tester to detect improperly sealed resin cartridges. Used in factories with **100%** failure detection and false positive verification
- Designed a **Raspberry Pi** laser tester to ensure safety of Form2/Form3 cosmetic parts. The tester was also used to verify laser power and transmittance on optical surfaces

Test Systems Engineering **Flex (May 2017 - Aug 2017) (Sept 2016 - Dec 2016)**

- Designed and developed bench testers for automotive modules using custom prototyping boards
- Full System design of ATmega2560 system with LIN communication and a physical user interface for operators. This solution lowered the BoM cost by **75%.**
- Researched and experimented with machine vision and gantry systems for automating production line testers using **Labview** and **LabWindows C**

Projects

Personal Media System **Raspberry Pi/Arduino/Spotify API/Kivy GUI**

- Created a **Python** application to enhance dorm apartments
- Used Spotify API, GPIO, and serial communication with Arduino to control LEDs with music
- Kivy GUI was used to make the application user friendly

Additive Manufacturing Design Team **SmoothieBoard/Octoprint/STM32**

- Built a 600 mm^3 fdm 3D printer with a Raspberry Pi running Octoprint to control a Smoothieboard
- Currently working on another 3D printer, developing **C** code on a STM32F401RE MCU
- Currently investigating 3D printing challenges and competitions