Morgan Yeung

WORK EXPERIENCE

Product Calibration Software Intern — Formlabs, 2019/01 - 2019/04

- I programmed calibration routines for the Form3 ensuring high-quality printers are built in the factory, with smart workflows using sensor inputs to reduce cognitive load, reduce user error during calibration and reduce cycle times.
- I oversaw the IQC of printers and worked with several teams to correlate specifications and calibrations to print quality, resulting in studies of calibration changes during shipping.

Hardware Systems Manufacturing Intern — Formlabs, 2018/01 - 2018/09

- I designed and built machines, testers as well as calibration fixtures and jigs for the Form2 and Form3 3D printer as well as the Form Wash and Form Cure.
- I programmed the hardware mentioned above to meet functional requirements and also ensure ease of use when shipped to factories overseas.

Test Systems Engineering Intern — Flex, 2016/09 - 2016/12 and 2017/05 - 2017/9

- I designed and developed testers for automotive modules. Using prototyping boards, I was able to lower the BoM cost by $1500 while maintaining LIN communication functionality.
- I researched and experimented with machine vision as well as integrated hardware for automated end of production line testers.

INDUSTRY PROJECTS

Python3 Calibration Tests for Form3 — Formlabs, 2019

- Z-tilt: Measure, record the tilt in tower of the Form3 to apply offsets while printing to ensure quality prints across the build volume
- Proudness: Measure critical printer dimensions that define the build plane, and rework printers if necessary to meet specifications

Data Analytics for Form3 Calibrations — Formlabs, 2019

- Python scripts to pull data from SQL database to compare calibrations between jigs, between printers, and before/after shipping
- Built in Jupyter Notebook for data visualizations and ui widgets to manipulate the data; ie: filtering by pass/fail, location, operator, etc.

Cartridge Pressure Tester — Formlabs, 2018

- System design of a pneumatic tester to detect improperly sealed resin cartridges
- Used in factories with 100% failure detection, now looking for false positives

Laser Attenuation Tester — Formlabs, 2018

- System design of a device to ensure safety of Form2/Form3 cosmetic parts
- Tester was also used to verify laser power and transmittance on optical surfaces

Automotive Overhead Console Tester — Flex, 2017

- Hardware and software design of ATmega2560 system with LIN communication and a physical user interface for operators
- Total BoM cost of 500 when budget was 2000, 20 units were deployed to factories

PERSONAL PROJECTS

Bedside Media System — Waterloo, 2019

- Raspberry Pi system to make my dorm apartment cool with music and LEDs
- APIs used: Spotipy and GPIO displayed on a Kivy GUI

SOFTWARE

- Python
- C / C++
- Matlab
- Labview
- HTML / CSS
- SQL
- Git

HARDWARE

- ATmega Microcontrollers
- Raspberry Pi
- Serial, I2C, UART
- CAN, LIN
- Actuators (Pneumatic / Electric)
- Sensors (Digial / Analog)

TOOLS

- JIRA
- 3D Printers
- Solidworks
- Machine Shop
- Altium/DipTrace
- Electronics Debugging

ACTIVITIES

CONTACT

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