Michael Liang

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SKILLS

- Systems Engineering
- HILS Testing
- Data Logging
- CAN & Ethernet
- Industrial Automation
- Rapid Prototyping
- Soldering
- KiCAD
- CNC Systems
- SolidWorks/OnShape
- 3D Printing
- MATLAB
- Microcontrollers
- Python
- Laser Cutting
- Agile Development

WORK EXPERIENCE

Honda R&D America : Marysville , OH — Jan 2022 - Present

▪ Autonomous Systems Engineer

- Led system-level development and validation for multiple ADAS and Transmission/Powertrain ECU platforms across 6 development-stage and production-intent vehicle programs, driving HW/SW integration, ECU issue triage, and root-cause analysis from early development through vehicle validation.
- Designed, developed, and deployed 3+ automated HILS benches used by global engineering teams, enabling repeatable validation of manufacturing issues, R&D concerns, field failures, and regulatory requirements.
- Delivered DEC ECU regulatory battery voltage monitoring software on an accelerated 9-month timeline, contributing to a 25% reduction in development and validation timing versus the original 12-month plan; led Death Valley Hot Weather Testing for high-temperature validation of TCU unit.
- Saved Honda over $500,000 thousand dollars and minimized factory downtime by coming up and implementing a unique way to re flash 70+ units for upcoming new build reduced the time to ship to Japan from 1 month and back into a two week build. Utilizing the Line End Specification, spoofing the reprogramming from CAN for OTA updates and then DoIP for ECU level reprogramming was able to ensure that factory received correctly updated parts.
- Technologies Utilized: Automotive Bus (CAN, Ethernet), VECTOR (VT System), DFMEA Analysis, XCP/CCP

Toast Inc : Boston, MA — Jun 2021 - August 2021

▪ Electrical Engineering Co-op

- Fabricated a fully custom automated robotic hardware testing platform based on a ESP32 uC/stepper driver board, custom designed 3d printed tapping mechanism, and Raspberry Pi for data acquisition/motion planning.
- Worked closely with a cross disciplinary team of engineers to create detailed specifications for an upcoming tablet. Collaborated with ODM/JDM manufacturing vendors through out the product development lifecycle.
- Technologies Utilized: ESP32, Python, Fusion 360, RF Explorer, and PADs viewer.

WardJET - Waterjet Cutting Machines : Tallmadge, Ohio — May 2020 - May 2021

▪ Electrical Engineering Co-op

- Designed and implemented an audio based Raspberry Pi based data collection system to assist with root cause analysis of clogs in cutting operations for waterjets and provide lights out cutting capability.
- Supported Industrial automation engineers in configuration of I/O Link sensors, Ethercat Network installation, PLC/automation panel component selection and layout and install of AC Servo drives (Clearpath, Yasakawa) for waterjets.
- Worked closely with Electrical/Mechanical/SW engineers to understand DFM, manufacturability, integration of industrial Networks, and respond to customer needs with custom/novel solutions in the waterjet industry.
- Technologies Utilized: Python, Industrial Controls (I/O Link, Ethercat),Raspberry Pi, and MATLAB.

University of Akron Undergraduate Research: Akron, Ohio — Sep 2018 - March 2019

▪ Lab Assistant for LTA Research & Exploration

- Worked closely with a multi-disciplinary team to develop custom rapid prototyping and fabrication solutions for a innovative Unmanned Aircraft System.
- Retrofitted new safety equipment, maintained, and calibrated a 300 watt industrial laser cutter.
- Maintained a print farm of over 15 industrial-grade 3d printers which ran 24/7.
- Technologies Utilized: SolidWorks 2018, Simplify3D, Octoprint, and RDWorks laser controller software.

PROJECTS

MLL Electronics: A Rapid prototyping R&D Lab

- Hugging Face S0101 Robot arm - focused on building a data pipeline for VLAs and learning machine learning on the Nivida platform as well as exploring the visualization of complex environmental sensor data.
- Project Archimedes - IOT 4.0 startup through UARF I-Corps program. Interviewed over 15+ Industry professionals about the development of a VR/AR IOT Edge device for PLC data acquisition and display of real time sensor data. Worked to define HW/SW system architecture, relevant COTs HW for prototyping, and understand the paint points of the Industrial Automation space.
- Various CNC/Industrial Automation related projects for both personal and professional settings. Examples include Voron 2.4R2 3D printer, South Bend 9A lathe restoration, LMS 3990 mini mill to CNC conversion, and Baldor 2x72 Belt grinder to VFD controls retrofit/restoration project.

Keyboard Warrior: A custom built STM32F303 keyboard running the QMK firmware.

- Goal: design and fabricate a modular mechanical keyboard with ability to extend functionality over i2c (number pad, OLED display, etc)
- Schematic and board routing was done in KiCAD. With attention paid to crystal oscillator design, USB differential pair layout, and power supply design.
- Used Solidworks to design a custom stacked aluminum case for simplicity and ease of fabrication.

EDUCATION

The University of Akron: Akron, Ohio

- Bachelor of Science in Electronic and Electrical Engineering Technology — Aug 2018 - Dec 2021