📞 647-207-4122 · 🗹 jerrytiang@icloud.com · 🚔 portfolio · 🛅 linkedin.com/in/jerry-tiangi

Technical Skills

Electrical Knowledge: Power Distribution, Analog Circuit Design, Voltage Regulators, Signal Integrity Hardware Validation: Instrumentation, Root Cause Analysis, Test Automation, Python Scripting, Tableau Hardware Development: Schematic Capture, PCB Layout, Harness Design, Prototyping, Altium, LTSpice

Education

University of Waterloo Bachelor of Applied Science in Systems Design Engineering Relevant Courses: Analog Circuit, Integrated Analog Electronics, EM Waves & Fields

Experience

Silicon Validation Intern

Apple Inc.

- Conducted comprehensive analysis to diagnose all events and faults occurring in 3 PMICs during mission mode
- Executed PMIC validation process on multi-phase buck converters, running Dynamic Voltage Scaling, Load Transient and Load Sweep tests to monitor all abnormal flags in the PMIC
- Developed scalable **Python** scripts that integrated 5 instrument drivers to streamline testing and data collection
- Investigated PMIC threshold settings to diagnose LDO dropout, LDO over voltage and Buck negative current problems

Electronics Engineering Intern

Multimatic Inc.

- Designed and assembled 2 breakout PCBs capable of handling 500W power pass-through for the suspension system
- Created harness system schematic for the breakout PCBs, including connection diagram, wire cut sheet and BOM
- Routed 100+ power/signal traces on a 6-layer PCB with prioritizing SI, and assembled both PCB & harness

Hardware Development Intern

Ford Motor Company

- Characterized performance of **buck controllers** and **efuses** on the in-vehicle infotainment system PCBs
- Analyzed circuit schematics and modified the PCB to run Load Regulation, Load Transient and SW Node **Ringing** tests, verifying that the PCB meets required design criteria across a range of hot and cold environments
- Programmed Python scripts to control Power Supply, 3 DMMs, Thermocouples, Oscilloscope and Electronic Load simultaneously to achieve test automation
- Designed a PMOS gate driver test circuit and debugged reverse current problem caused by DUT capacitor discharge
- Supported the infotainment system's firmware development by assisting with PCB modifications for the team

Projects 🗹

Drone Payload Controller PCBs | Voltage Regulator, ESP32, KiCad

- Designed a 4-layer servo motor and solenoid driver PCB for the payload drop mechanism using an ESP32 MCU, Buck Converter and LDO
- Simulated circuit in LTSpice by sweeping frequency to verify **inrush current** LC oscillator gain stays below 10dB
- Designed a compact 21mm x 27mm payload data collection PCB with the same MCU, 2 sensors and an Efuse

12S Servo Power Module | Buck Controller, Validation, Altium Designer

- Developed a power distribution PCB to step down 18V-55V battery voltage to 6V servo input voltage, with independent over current protection and PWM buffer circuits
- Designed a synchronized buck controller circuit using external switching FETs, including tuning options such as snubber circuits for SW Node Ringing to allow for modifications if needed
- Performed Line Regulation, Load Regulation, and Load Transient testing on the buck controller circuit to evaluate the effects of a wide battery input voltage range and various load current conditions

Sept 2020 - Apr 2025

May 2024 - Aug 2024

Cupertino, CA

Aug 2023 – Dec 2023 Markham. ON

Jan 2023 – Apr 2023 Kanata, ON

Jan 2025 – Mar 2025

Aug 2023 – Apr 2024

Waterloo, ON

