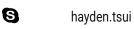
Hayden Tsui

4A Mechatronics Engineering | University of Waterloo

+1 669 278 6619





Hardware: Analog/Digital Circuit Design, Schematic Capture, PCB Design, Board Bring Up and Validation Lab Experience: Oscilloscopes, Function Generators, VNA, DMM, Equipment Automation, Soldering (>=01005) Tools: Ansys HFSS, Cadence ADS/Allegro, Altium, DxDesigner, PADs Layout, LTspice, EAGLE and SolidWorks Software: Python, Bash, C, C++, MATLAB with experience in SPI, I2C, UART, PCIe protocols



EXPERIENCE

Electrical Test Engineer Intern at Facebook, Menlo Park, CA

May- Aug 2018

- Ansys HFSS & ADS Channel Link Simulation of PCIe Gen 4 to characterize eye and optimize Tx/Rx params
- Signal Integrity Validation of high speed protocols such as PCIe Gen 3 & DDR4 and other serial interfaces
- · Worked with ODM to facilitate and troubleshoot factory bring up, functional failures

iPhone Baseband Hardware Design Intern at Apple Inc, Cupertino, CA

Sept - Dec 2017

- Defined **PMIC architecture**, requirements and specs for custom silicon used in future generation products
- Validated Baseband/RF systems involving high speed signals and RF interfaces such as PCIe and RFFE
- Owned the design of development boards and debug flexes for the iPhone RF team
- Python automation to control power supplies, DMM, CWMs, oscilloscopes and devices under test

iPhone Baseband Hardware Design Intern at Apple Inc., Cupertino, CA

Jan - Apr 2017

- Wireless communication hardware design ranging from characterization, MLB schematics to PCB layout
- Collaboration with RF engineers regarding RF hardware architecture for 2G/3G/LTE cellular technologies
- Improved accuracy of power measurment platform by 80%, optimizing calibration algorithms in Python and C

Apple TV Hardware Engineering Intern at Apple Inc, Cupertino, CA

May - Aug 2016

- Designed PMU test board from start-finish from spec definition, schematic capture, board design to bring-up
- Gained solid understanding of board design process such as stack-up, impedance control and constraints
- Developed embedded C code for on-board MCU to monitor and control battery charging via I2C
- Wrote numerous Python and Bash scripts to extract, process, and visualize data from 275,000 + files

Hardware Design Engineering Intern at Nanometrics, Ottawa, ON

Sept - Dec 2015

- Assisted in the PCB layout and multi-layer routing of a 4 layer PSU PCB, implementing a fly-back converter
- Designed and implemented a SD/EMMC to USB interface via SPI & 4-bit mode
- Reduced power consumption of instrument by 12% through component selection and experiments
- Developed understanding of EMI certification through involvement in certification testing



PROJECTS

Bass-Boosted Headphone Amplifier, USB Rechargable

- Conducted a SPICE simulation using LTSpice to model bass-boosted frequency response and behaviour
- Component Selection, Schematic Capture, PCB layout of a 2 layer board using DxDesigner and PADs Layout

