Monty Choy

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montychoy.com | linkedin.com/in/montychoy | github.com/mochoy | suild.com

Education

California Polytechnic State University, San Luis Obispo **(Junior) Expected Jun. 2022**
BS Electrical Engineering - 3.95 Major GPA *San Luis Obispo, CA*

- Dean's List; Hyperloop Control Systems lead, SLO Breakers, EE Mentor, Yu-Gi-Oh Club

Experience

Apple **(9 months) Jan. 2019 - Sep. 2019**
Hardware Engineering Intern - Apple TV Hardware Engineering *Cupertino, CA*

- Designed electrical, mechanical, & software system to characterize IR performance
- Architected, prototyped, & designed HDMI dev platform PCB. Design lead for DC-DC power, USB, & debug subsystems. Collaborated on high-speed digital (HDMI) & MCU subsystems
- Led validation, debug, & FA efforts: HDMI (CTS), PMU, SoC, UART, NAND, PCIe & PDM mic hardware subsystem, & multilayer PCB failure
  - Debugged SAR ADC current & voltage measurement tracking on PMU's multiphase buck
  - Conducted HDMI CTS testing across process corners. Debugged eye opening compliance & configured PHY output behavior. Explored high-speed digital PHY & board-level design
- Analyzed A-series SoC thermal & power performance across temperature & process corners
- Analyzed test coverage on factory line to ensure correct placement, value, etc. for every component at each test station. Increased component test coverage by over 25%

Microsoft **Jun. 2020 - Sep. 2020**
Software Engineering Intern - Surface Duo Firmware Engineering *(Remote) Sunnyvale, CA*

- Brought-up, integrated, & developed sensor device driver on Qualcomm Snapdragon SoC
  - Deployed driver for commercialization on the Surface Duo for use by 1M+ customers
  - Debugged unresponsive hardware: used logic analyzer to analyze I2C traffic & PI
- Developed Android app, Android framework, & native libraries for modem configuration

Suild **Nov. 2016 - Jul. 2020**
CEO *San Francisco, CA*

- Designed, coded, manufactured, tested, & shipped pcb-based electronics products implementing AVR MCUs, USB, UART, DC-DC converters, & PID controlled inductive loads
- Shipped 1k+ units to 10+ countries on webstore with 30k+ annual sessions & $15k+ revenue

Projects

Find more at suild.com & montychoy.com

Select-Fire Nerf Rapidstrike Kit - suild.com/shop/4 **Jun. 2019 - Jul. 2020**

- Designed PCB-based product for select-fire inductive pusher control in modified Nerf blasters
  - Manufactured, shipped, and sold 300+ units to 10+ countries
- Implemented programmed MCU, DC-DC power, & PID inductive drive hardware subsystems

Epic Buck Converter **Aug. 2020 - Present**

- LTspice simulation of ideal & non-ideal, single phase, open-loop, continuous mode buck converter with synchronous rectification

RISC-V MCU **Apr. 2018 - Jun. 2020**

- Designed MCU & microarchitecture to implement RISC-V ISA in SystemVerilog on FPGA
- Wrote test benches to validate hardware modules before & after system integration

Technical Skills

- **Hardware Engineering:** MCUs, I2C, SPI, CAN, USB, UART, HDMI, PCB layout & design, test coverage & HW validation, computer architecture, RISC-V ISA, high-speed digital design
- **Power Electronics:** DC switching regulators, inductive drives, MOSFET drives, LiPo batteries
- **Software Engineering:** C, C++, Python, firmware, scripting, device drivers