Kelvin Ly

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University of Central Florida — MS, Computer Engineering

Cummulative GPA: N/A — 2016-Spring 2018

University of Central Florida — BS, Electrical Engineering

Cummulative GPA: 3.905, Magna Cum Laude — 2011-2015

Objectives

To being and pursue a career in hardware design engineering or firmware engineering

Skills

- Semiprofessional experience in electronics design (mostly **mixed signal/digital**, a little RF), **PCB layout** (KiCad, some Altium Designer)
- Hobbyist level **PCB assembly and soldering**, **SPICE circuit modeling**, and reverse engineering
- Some familiarity with **I2C**, **SPI**, **UART**, **CAN**, **SDIO**, **Ethernet**(10BASE-T), **on-off keying**, **PCM**
- Fluent in **C/C++**, **Python**, **Go**, **Verilog**, **JavaScript**
- Working knowledge of **x86/x64/MIPS/MSP430** assembly, **Java**, **LaTeX**, **MATLAB**, **Multisim**, **Xilinx ISE**, **VHDL**, **Linux**, **JTAG/SWD**

Professional Experience

Fluorometric Instruments Design Engineer, Orlando FL — September 2017 - present

- **Designed PCBs** part time for oxygen sensors, allowing clients to test manufacturable products
- Created **designs**, **layouts**, sourced parts, and **assembled and tested** PCBs to create reproducible and manufacturable designs
- Developed **firmware** and **support software** for devices as needed

University of Central Florida Undergraduate/Graduate Researcher, Orlando Fl — November 2015 - present

- Researched defenses and attack mitigations for the **Internet of Things**, producing four publications and one book chapter
- **Designed and assembled PCBs** for the lab, producing tools and prototypes for a wide variety of projects
  - Built mixed-signal or digital designs incorporating **Texas Instruments**, **Expressif**, and **Atmel** microcontrollers
  - Currently designing a simple Doppler **2.45 GHz radar system** to provide a physical model for a labmate's project
  - Implemented and designed much of the lab's submissions to the **NYU CSAW Embedded Security Competition** '15, '16, and '17 (winning second and first respectively, no win in 2017)
- Funded by **SRC/Intel fellowship**

University of Central Florida Undergraduate Researcher, Orlando FL — December 2014 - March 2015

- Studied **feature extraction** from EEG data, implementing **SSVEP frequency detection** that was later used in senior design project
- Maintained and repaired **RAVEN II** medical robot running on **ROS robotics framework**, restoring it to operation and allowing its use under a new team in current research projects

Internships

IBM Extreme Blue Intern, RTP NC — May 2015 - August 2015

- Developed **on-disk encryption** for **IBM Connections**, creating a roadmap of design pitfalls for IBM's teams to work off of
- Implemented project in **JavaScript and Node.js**, with patches to existing **Java** and **Python** code and libraries, successfully providing encrypted context access and search indexing

Google Software Engineer Intern, Chapel Hill NC — May 2014 - August 2014

- Patched existing benchmarking code for Skia rendering engine, allowing collection of gigabytes of data into a single database
- Learned and contributed code in **C++**, **Python** and **Go** to allow usable visualization of benchmarking data, meeting Skia team's recommendations

Notable Projects

- **UCF Lunar Knights** project, Software team lead Fall 2017-Spring 2018, member since 2015 (Martian robotic mining competition)
  - **Troubleshot and debugged** previous year competition robots, tuning and refining PID controller values to allow responsive robot movement and prevent physical damage to robot frame
  - Designed **CAN interfacing board** with **high density connectors** to mate with Nvidia's Jetson TX2, allowing native **CAN bus** access
  - Developing software for **robot simulation and testing** using **ROS** and **gazebo**, allowing parallel development of autonomy and robot assembly
  - Developing software systems for **robotic autonomous navigation** and teleoperation, allowing robot functionality for all years of competition
- Senior design project (mind-controlled wheelchair)
  - Led high-level hardware system design
  - Designed and layed out circuits for all high-level modules using **KiCAD** EDA software
  - Research into **signal processing** for **feature extraction** with respect to applications in **brain-computer interfaces**