

UNIVERSITY OF CENTRAL FLORIDA

Cummulative GPA: N/A

MS, COMPUTER ENGINEERING

2016-Spring 2018

UNIVERSITY OF CENTRAL FLORIDA

Cummulative GPA: 3.905, Magna Cum Laude

BS, ELECTRICAL ENGINEERING

2011-2015

SKILLS

- Semiprofessional experience with electronics design, PCB layout (KiCad, some Altium Designer), and reverse engineering
- Hobbyist level PCB assembly and soldering
- Fluent in **C/C++**, **Python**, **Go**, **Verilog**
- Working knowledge of **x86/x64/MIPS/MSP430** assembly, **Java**, **LaTeX**, **bash**, **MATLAB**, **Kicad** EDA Software Suite, **Multisim**, **Xilinx ISE**, **VHDL**

PROFESSIONAL EXPERIENCE

FLUOROMETRIC INSTRUMENTS DESIGN ENGINEER, ORLANDO FL

SEPTEMBER 2017 - PRESENT

I am working part time to **design PCBs** for oxygen sensors. I worked on many of the stages of development for a handful of products, including **design**, **testing**, **parts sourcing**, and **assembly**. The work involves designing PCBs to fit mechanical and electrical specifications, as well as **developing firmware and GUIs** for the devices as necessary.

UNIVERSITY OF CENTRAL FLORIDA UNDERGRADUATE/GRADUATE RESEARCHER, ORLANDO FL

NOVEMBER 2015 - PRESENT

The focus on my research here has been on the security of the **Internet of Things**, more specifically the development of defenses for IoT devices against attacks. Consequently, much of my work so far has been in **PCB design and assembly** to develop devices to test out security ideas or provide education on hardware security, and software development to explore ideas in IoT security. Designs so far have incorporated **MSP430** and **Atmel** microcontrollers, along with current work on a primitive **2.45 GHz radar system** for use in a labmate's project. I have also previously worked on our submissions for the **NYU CSAW Embedded Security Competition** '15, '16, and '17 (winning second and first respectively, no win in 2017), which generally involved producing a proof of concept for solving some problem in **cryptography and security domains**. These contests led to a wide range of challenges, from writing code to interface with **MATLAB Simulink** to **modifying the OpenRISC processor core** and **patching a GCC backend**. I am currently being funded by an **SRC/Intel fellowship**.

UNIVERSITY OF CENTRAL FLORIDA UNDERGRADUATE RESEARCHER, ORLANDO FL

DECEMBER 2014 - MARCH 2015

We studied **feature extraction** from EEG data, focusing on **SSVEP frequency detection**, and used this knowledge in our senior design project, discussed further below. We used emokit **Python** library to extract signals from Emotiv EEG headset. Some work was done with the **RAVEN II** medical robot running software built on the **ROS robotics framework**.

INTERNSHIPS

IBM EXTREME BLUE INTERN, RTP NC

MAY 2015 - AUGUST 2015

Here our team worked on **on-disk encryption** for **IBM Connections**. We pioneered work in this direction, producing a proof of concept to pave the way for the actual Connections team to develop. We used **JavaScript** and **Node.js** for the server **backend**, and modified existing **Java** and **Python** code and libraries for various parts of the project.

GOOGLE SOFTWARE ENGINEER INTERN, CHAPEL HILL NC

MAY 2014 - AUGUST 2014

I worked on the Skia benchmarking team, providing tooling for **Skia** rendering engine team. This job involved pipelining the gigabytes of data being produced daily from test bots into a useful visualization for the Skia team. I learned **Go**, and contributed code in **C++**, **Python**, and **Go** for both internal and open source projects.

NOTABLE PROJECTS

- **UCF Lunar Knights** project, electrical/communications/software teams (Martian robotic mining competition)
 - Software team lead Fall 2017-Spring 2018, member since 2015
 - Helped in robot **assembly**, **troubleshooting** and **debugging**
 - Developed software for **robot simulation and testing**, mainly through providing wrappers in **ROS** for **gazebo**
 - Designed **CAN interfacing board** with **high density connectors** to mate with Nvidia's Jetson TX2
 - Led efforts in **robotic autonomous navigation**
- 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**