Kelvin Ly

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University of Central Florida — BSEE, Electrical Engineering

Cummulative GPA: 3.895 — December 2015

Related Coursework

1. Electronics I/II (Transistor/op amplifier amplifier design)
2. Linear Control Systems (System stability, pole compensation, analog filters)
3. Digital Signal Processing (z-transforms, digital filters)
4. Computer Architecture (digital circuit design)

Professional Experience

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

This research experience actually has had so far two major projects. The first phase was focused on Working on a **RAVEN II** medical robot running the **ROS C++** robotics framework. This robot was meant to work as surgery robot, with our task being to augment the controls with BCI-based controls to improve usability. Unfortunately the robot proved hard to use, and we switched over to working in **signal processing** in **Python** of EEG data in general. Our team has been studying **feature extraction** and **SSVEP frequency detection** to hopefully advance the state of the art. We have used **emokit Python** library to extract signals from Emotiv EEG headset, and are continuing research into SSVEP BCI interfaces.

Internships

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

Here our team worked on zero knowledge **encryption** for **IBM Connections Cloud**. We used **JavaScript and Node.js** for the server **backend**, and modified and used existing **Java** and **Python** code and libraries for various parts of the project.

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

Here I worked as an intern on the Skia benchmarking team, worked on benchmarking framework for **Skia** rendering engine team.

Projects

- **UCF Lunar Knights** project, electrical/communications teams
  - Helped with **wireless communication** with **Beaglebone Black**
  - **UART** communication with **Arduino** to send **PWM** to motor controllers
  - Helped in robot assembly, troubleshooting and debugging
- **IEEE-UCF Hardware Team** for SouthEastCon, motors team
  - Involved in the design and construction of motors system for competition robot
  - Programmed, along with a few others, the **Arduino** powering the robot during competition
- Senior design project
  - **Hardware system design** for all components
    - Led overall hardware system design
    - Designed schematics for all components using **KiCAD** EDA software
    - Converted schematics into PCBs using **KiCAD**
  - Research into **signal processing** for **feature extraction** with respect to applications in **brain-computer interfaces**
  - Some experience with reverse engineering wheelchair **communication protocols**
  - Created and designed laser cut design to create gimbal to control wheelchair joystick
  - Wrote **assembly** for the **MSP430** to test the gimbal
- **Robotics Club, UCF**
  - Worked on Cypress **PSoC chips** for high performance UART
- Studying **asynchronous circuit design**, working on 8-bit asynchronous CPU for fun

Skills

- Hobbyist experience with eletronics design and reverse engineering, guitar electronics repair
- 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**
- GitHub user: `https://github.com/cactorium`