Kelvin Ly

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EDUCATION

UNIVERSITY OF CENTRAL FLORIDA   BSEE, ELECTRICAL ENGINEERING

Cummulative GPA: 3.895   Graduating 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