Richard Lee
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Education

The Cooper Union for the Advancement of Science and Art, NY, Sept. 2017 - May 2021
- Bachelor of Engineering, Electrical and Computer Engineering; Cumulative GPA: 3.6/4.0

Experience

Hardware Programming Intern at Control Technology Co., Inc., New York, NY, Summer 2019
- Designed an RFID Access Control System to streamline the payroll process and save company time and money
- Implemented using the MFRC522 Chipset and a Raspberry Pi; designed a Python Tkinter GUI that interfaced with Python scripts to read RFID cards, manage user data, parse sign in/sign out times, and tabulate work hours.

Micro Lab Server Room Lab Technician, Cooper Union, NY, Sept. 2017 - Present
- Manage and maintain Linux servers in the EE labs – Create OS images with necessary software on lab computers
- Provide support to facilitate remote access to software such as Cadence Virtuoso, Matlab, and LTSpice

Relevant Coursework

Frequentist Machine Learning, Summer 2020
- Learned about statistical machine learning by implementing linear and logistic regression with regularization
- Explored Decision Trees in the form of Random Forests, Gradient Boosted Trees, and xgboost

Digital Signals Processing, Fall 2019
- Performed Frequency Domain analysis using poles and zeros to assess bandwidth and stability
- Learned about sampling issues, such as aliasing and imaging, when converting between analog and digital signals

Operating System Design, Fall 2019
- In-depth analysis of the Linux Operating System, C System Calls, and Kernel Behavior
- Wrote programs to redirect I/O, probe a file system, share process memory, and implement mutex locking
- Analyzed Linux Kernel task switching and the control flow of a Linux Kernel system call

Selected Awards and Projects

Dormi Home Sleep Test, The Cooper Union/Mount Sinai Hospital, Oct. 2018 - Feb. 2019
- Presented a Radar-based Non-Intrusive Sleep Test at Mt. Sinai Health Hackathon Innovation Showcase
- Designed a Python program to use a solid state radar to monitor breathing rate and energy to identify anomalies indicative of sleep apnea

Indoor Air Quality Monitor, Jul. 2020
- Utilized an ESP32 microcontroller, Sensiron CO_2 sensor, and a Bosch Volatile Organic Compound (VOC) Sensor to monitor and log indoor air quality
- Leveraged multiple processor cores and a Real Time Operating System (FreeRTOS) to allow asynchronous data upload to a Python Flask server, where the data was plotted for visualization

alarmCal, The Cooper Union, May 2018
- Worked with two team members to design an inclusive alarm and calendar GUI using the Qt toolkit
- Designed a user friendly C++ Datetime Class modeled after the Python equivalent for easy date and time arithmetic

Near Space Weather Balloon, Dec. 2013 - Apr. 2014
- Planned, Designed and Launched a Weather Balloon classmates – reached a height of 40km into the atmosphere
- Designed a Printed Circuit Board in EagleCAD to integrate an Arduino Mega 2560 with I^2C, UART, and SPI sensors

Skills

Foreign Languages: Cantonese and Mandarin Chinese
Programming Languages: PIC Assembly, Embedded C, C, C++, Bash, Python, Java, Matlab
Frameworks: Arduino, FreeRTOS, Tkinter, Qt, Tensorflow, Jekyll, React
Technical Skills: Soldering, Oscilloscope, Breadboard Wiring, Circuit Validation, Printed Circuit Board Design
Software: Windows, Linux, MS Office, AutoCAD Inventor, Wireshark, Git Version Control