Max H. Li

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Graduate electrical and computer engineer completing the final year of a M.S. degree. Concentrations in Machine Learning, Digital Signal Processing, Software Defined Radio, and Embedded Systems.

Work History

Systems and Technology Research **Woburn, MA**
Signal Processing Intern *May 2017–June 2018*

Provided support on DARPA-funded project investigating the use of side-channel emissions to differentiate operating states of a device. Set up development environment for MIPS based Device Under Test (DUT). Investigated the polarimetric characteristics of electromagnetic emissions from DUT. Measured Mutual Information characteristics of different frequency bands for DUT.

Signal Processing and Information Networking Laboratory(SPINLab at WPI) **Worcester, MA**
Undergraduate Research Assistant *April 2015–May 2017*

Worked on various projects, including a real-time timestamp-free syncronization technique and a real-time FM demodulator.

Education

Academic Qualifications

Worcester Polytechnic Institute **Worcester, MA**
MS/BS Electrical and Computer Engineering, GPA: 3.64, Deans List, Fall 2013–present *2013–Present*
A Selection of Classes Taken: Computer Vision, Artificial Intelligence, Detection and Estimation Theory, Real-Time Digital Signal Processing, Advanced Digital System Design with FPGAs, Principles of Communication Systems, Introduction to Cryptography and Communication Security

Notable Projects

Masters Thesis: *'Investigating Catastrophic Forgetting in a Cognitive Engine for Space Communications'*

Working with NASA's Glenn Research Center, extended previous work researching the application of Deep Reinforcement Learning to adaptive space communications. Modified MATLAB simulation to utilize new training mechanics, in an attempt to deal with Catastrophic Forgetting. Tested on-flight with SDR platform on the International Space Station.

Major Qualifying Project: *'Multi-Purpose Aerial Software Defined Radio'*

Finalist for ECE Provost MQP award. Worked on a team of 5 to design an aerial platform for spectrum sensing. Potential uses for the platform include lost hiker location and channel modeling.

Publication with SPINlab: *'Real-Time Implementation of Timestamp-Free Synchronization'*

Used C to program two TI DSP boards to synchronize software clocks to within 10 ns mean and standard deviation. Presented resulting paper at the Asilomar Conference on Signals, Systems and Computers, held in Monterey, CA in November 2015.

Technical and Professional Skills

Programming Languages: Python, Matlab, C, C++, Verilog, TeX, x86 Assembly, VHDL, Java.

General Business Skills: Good presentation skills; Works well in a team; Can write well-organized and structured reports.

Interests and Extra-Curricular Activities

- Member of Eta Kappa Nu, Gamma Delta chapter
- Achieved the rank of Eagle Scout, as recognized by the Boy Scouts of America.
- Served as General Manager and Music Director of Campus Radio.