SHANGLIN GUO

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PROFILE

Electrical engineering graduate student with extensive experience in IoT and embedded systems, capable of sizeable hardware-software integrations. Laboratory experience in Linux and computer networks configurations. Familiar with networking protocols, TCP/IP 4-layer architecture, and networking standards (REST, CoAP) for IoT devices.

EDUCATION

Columbia University New York, NY
M.S. in Electrical Engineering Sep 2018 – Dec 2019 (Expected)
GPA 4.00/4.00

- Courses: Internet of Things, Computer Networking Laboratory, Embedded Systems
- Research: Wireless & Mobile Networking (WiMNet) Research Lab

The Hong Kong Polytechnic University Kowloon, HK
B.Eng (Hons) in Electronic & Information Engineering June 2018
GPA 3.76/4.00

EXPERIENCE

Wireless & Mobile Networking (WiMNet) Research Lab, Columbia University New York, NY
Research Assistant Feb 2019 – Present

- Participating in the Columbia FlexICoN (Full-duplex Wireless: From Integrated Circuits to Networks) project which focuses on the design and implementation of full-duplex wireless communication testbed
- Currently working on upgrading the custom-designed full-duplex radios, that consists of a full-duplex (FD) transceiver using the USRP N210 SDR and a customized RF canceller
- Focusing on embedded programming on the Arduino Due to interface with the RF canceller via SPI protocol, and optimizing the SPI performance on the Arduino Due

Brno University of Technology Brno, CZ
Research Assistant Jul 2017 – Aug 2017

- Developed and investigated node localization methods (RSSI, ToA) for Bluetooth wireless networks in C
- Implemented the localization methods on AVR microcontrollers as nodes, analyzed the result and optimized the localization methods based on the location error observed in lab experiments

PROJECTS

Musical Stimulus Visualization Feb 2019 – May 2019

- Implemented on the FPGA a memory-mapped peripheral, and communicated with the peripheral through C program running on the Linux kernel that can access a device driver
- Developed a C program that runs on an ARM-based hard processor system (HPS), performing a Fast Fourier Transform (FFT) and noise suppression on audio input received from a USB microphone
- Modified the device driver that implements an ioctl to mediate between the C program and the FPGA peripheral
- Designed a Serial-in, Parallel-out (SIPO) shift register in hardware to buffer the data input from software and output the parallel data to a VGA monitor for musical stimulus visualization

Juniper Networks/Comcast SDN Throwdown Competition 2019 Feb 2019

- Developed a creative solution using the Juniper Networks NorthStar SDN Controller, with a combination of networking and programming to solve real-world issues such as random link failures and load balancing
- Optimized the given network infrastructure, which consists of 2 servers and 12 routers across the US, and through monitoring and planning, finally achieved the dynamical provision of explicit routing paths using segment routing

SKILLS

Programming Language: Python, SystemVerilog, C/C++, Java, MATLAB, HTML

System and OS: Linux/Unix, Windows, Android | **Platform:** AWS, Microsoft Azure, GitHub