Hsun-Wei Cho

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EDUCATION

Doctor of Philosophy in Computer Science and Engineering Expected May 2024
University of Michigan, Ann Arbor GPA: 4.00/4.00
Advisor: Prof. Kang G. Shin

Bachelor of Science in Electrical Engineering January 2018
National Taiwan University GPA: 4.13/4.30 (3.96/4.00)

RESEARCH INTERESTS

Wireless Communication, Cross-Technology Communication, **WiFi**, **Bluetooth**, **IoT**, Cellular Networks, Signal Processing (**DSP**)

PUBLICATIONS

[1] **Hsun-Wei Cho** and Hung-Yu Wei, A Flexible IoT RAN System Based on SDR with Optimal Antenna Distribution, 5G Test-Beds & Trials Workshop at IEEE Globecom, Singapore, Dec. 2017.

[2] **Hsun-Wei Cho** and Kang G. Shin. Bluefi: Bluetooth over wifi. In Proceedings of the 2021 ACM SIGCOMM 2021 Conference, (**SIGCOMM**), 2021

[3] **Hsun-Wei Cho** and Kang G. Shin. FLEW: Fully Emulated WiFi. In ACM International Conference on Mobile Computing and Networking (**MobiCom**), 2022

[4] **Hsun-Wei Cho** and Kang G. Shin. Unify: Turning BLE/FSK SoC into WiFi SoC. In ACM International Conference on Mobile Computing and Networking (**MobiCom**), 2023

[5] **Hsun-Wei Cho** and Kang G. Shin. DREW: Double-Throughput Emulated WiFi. In ACM International Conference on Mobile Computing and Networking (**MobiCom**), 2024 (accepted)

[6] (In preparation) **Hsun-Wei Cho** and Kang G. Shin. BBC: Enabling BLE to Support Bluetooth-Classic

PATENTS

US Patents: 2 Pending (PCT filed)

HONORS AND AWARDS

Finalist, CSE Honors Competition, University of Michigan November 2022
SIGMobile Travel Grants, MobiCom '22 October 2022
College of EECS Representative at the 89th Anniversary of NTU November 2017
Second Prize, 2017 Taiwan Creative Electromagnetic Implementation Competition August 2017
Invited Speaker, 2016 Intel Asia Innovation Summit November 2016
Silver Medal, 2016 Altera Innovate Asia FPGA and SoC Design Contest October 2016
Presidential Award (3 times), National Taiwan University 2014, 2014 & 2017

PROFESSIONAL EXPERIENCE

Analog Devices | *Wireless Systems Intern* May 2023 - Aug 2023

- Cellular (LTE/5G) and DSP research for ADI's wireless transceivers (AD936x, ADRV90xx).
- Formulated original research agenda for cutting-edge cellular systems and chipsets.
- The research was voted as the **most innovative** project by ADI employees (at the 1st day intern symposium)

TEACHING AND MENTORING EXPERIENCE

Graduate Mentor, Real-Time Computing Laboratory, University of Michigan 2021, 2022-2023

- Advised two CSE undergraduate students to conduct research.
- Provided students with a hands-on introduction to microcontroller programming (8051 and ARM) and covered various advanced topics on embedded systems (assembly, DMA, SPI, USB, AES).
- Guided students to use software-defined radios (USRP) and to program/debug BLE chips.
- Provided introductions to signal processing, WiFi standards and MATLAB programming.

Competition Mentor, MakeNTU, National Taiwan University 2017

- Developed reference designs for Hackathon.
- Mentored multiple teams on hardware and software designs.

COURSEWORK

Graduate: **Machine Learning**, Principles of **Real-Time Embedded Systems**, **Advanced Computer Networks**, Distributed Systems, Parallel Computer Architecture.

Undergraduate: **Data Mining**, Introduction to **Digital Signal Processing**, Introduction to **Wireless and Mobile Networking**, **RF Microwave** Wireless Systems, Introduction to **Computer Networks**, Principle of Communications, **Algorithms**, Electronics, Electromagnetics.

TECHNICAL SKILLS

Languages: C/C++, Python, MATLAB, Java, Verilog, LabVIEW, OpenGL, Mathematica

Hardware: **USRP**, RTL-SDR, **AVR**, **8051**, Arduino, **ARM** (Cortex-M0+, Cortex-M3, Cortex-M4, Cortex-A9 (**Embedded Linux**)), **FPGA** (Altera Cyclone IV, Cyclone V), PCB design, layout and soldering

Miscellaneous: Visual Studio, Android Studio, **Quartus**, gcc, git, Atmel Studio, TINA-TI, scikit-learn, X11, CUDA, PyTorch, HFSS, **ADS**, **PSPICE**, WiFi, Bluetooth, **USB**