

HSUN-WEI CHO

b02502036@ntu.edu.tw

EDUCATION

National Taiwan University
B.S. in Electrical Engineering
Overall GPA: 4.13/4.30 (3.96/4.00)

September 2013 ~ Present

RESEARCH INTEREST

Communication Systems, Wireless Network, C-RAN, SDR, IoT, Signal Processing.

HONORS & AWARDS

International:

Invited Speaker, *2016 Intel Asia Innovation Summit* November 2016

Silver Medal, *2016 Altera Innovate Asia FPGA and SoC Design Contest* October 2016

Nationwide:

Second Prize, *2017 Taiwan Creative Electromagnetic Implementation Competition* August 2017

Outstanding Award, *Altera Innovate Asia FPGA and SoC Design Contest (Regional)* August 2016

At NTU:

College of EECS Representative at the 89th Anniversary of NTU November 2017

Presidential Award (3 times), *National Taiwan University* 2014, 2014 & 2017

PUBLICATION

[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 Hung-Yu Wei, "Software-Defined IoT RAN with Optimal Antenna Assignment", submitted to *IEEE Internet of Things Journal*, Dec. 2017.

SELECTED COURSES

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

RESEARCH EXPERIENCES & PROJECTS

Please visit sites.google.com/view/hwcprojects for video demos and more projects.

"Freedom in Wireless: A Future-Proof, Low Latency Wireless Microphone System" Project Advisor: Prof. Hung-Yu Wei
April 2016 - November 2016

Silver Medalist in 2016 Altera Innovate Asia FPGA and SoC Design Contest Wuhan, China

- An innovative SDR, centralized baseband system allowing flexible SW/HW cooperation for demodulation, multi-standard/multi-band support and better resource sharing ([poster](#)).
- **One-man team**: Personally responsible for all aspects of the system.
- Incorporate knowledge from analog/digital circuits, communication systems, RF systems and DSP to showcase a compelling ARM+FPGA SoC design.
- The only team that specifically mentioned by Intel Software Academic Program Director Michael Smith.
- Invited to speak and demo at the 2016 Intel Asia Innovation Summit ([slides](#)) to share the experience.

Wireless and Mobile Networking Laboratory

Undergraduate Research

Advisor: Prof. Hung-Yu Wei

March 2016 - Present

Taipei, Taiwan

- Focus on C-RAN, IoT, 5G, resource sharing and algorithm design.
- Explore the potentials of the in-house SDR platform including the cognitive radio ability, dynamic/optimal RRH resource allocation.
- Research independently; survey literatures; develop hardware testbed, physical layer to link layer; devise simulation program.
- Design an optimal antenna distribution algorithm and provide theoretical reasoning. Evaluate the algorithm with both simulation and real-world tests.

Low-loss Electromagnetic Transmission Medium

Project Advisor: Prof. Tzong-Lin Wu

August 2017

Second Place in 2017 Taiwan Creative Electromagnetic Implementation Competition Taoyuan, Taiwan

- Design and implement an electromagnetic structure from commonplace products and achieve a loss of 7.4dB over 2.5 meters operated at 3 GHz.
- Play a critical role in making major design decisions, including choosing the air dielectric coaxial structure and selecting materials.
- Design the dimension theoretically, simulate the structure and measure the performance by the VNA.
- Optimize the performance methodically by reflecting the electromagnetic insights on the measurement results and then adjusting the structure accordingly.
- Familiarize with RF instruments and software simulation tools.

SELECTED COURSE PROJECTS

Electronic Circuits Lab

1-bit Delta-sigma ADC/DAC with Wireless IR/RF Link

Digital Circuits Lab

Game Playing Robotic Arms

Communication System Lab

FSK Audio Streaming Tx/Rx with Real-Time PHY,
Frequency Hopping, CRC and Re-transmission

Data Mining

Movie Category & Gross Prediction

Introduction to Wireless and Mobile Networking

2-Hop Relay with XOR Network Coding in Cellular Network

All lab courses and courses with final projects are scored A+.

SCHOLARSHIP

Prof. Chun-Hsiung Chen Scholarship, Taiwan Electromagnetic Industry-Academia Consortium

ACTIVITIES & LEADERSHIP

Mentor at 2017 MakeNTU

Devise and construct a reference design for the event; host tutorial sessions; provide HW/SW consultation for various platforms; help several teams snatch big prizes.

TECHNICAL SKILLS

Programming Languages

ANSI C, C++, MATLAB, Verilog, LabVIEW, Mathematica, OpenGL

Hardware Platforms

AVR, Arduino, ARM Cortex-M3, ARM Cortex-A9 (Embedded Linux),
Altera Cyclone IV, Altera Cyclone V, USRP, RTL-SDR

Tools

Visual Studio, Quartus, GCC, Atmel Studio, TINA-TI, Android Studio

Others

Python, scikit-learn, X11, JAVA, Cuda C, HFSS