Shih-Chun Lin

CONTACT INFORMATION

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RESEARCH INTERESTS

- Wireless multiuser communication channel
- Cyber-physical security
- Capacity achieving codes

HONORS

(2018) IEEE Senior Member
(2018) Awarded Project for Excellent Junior Research Investigators, Ministry of Science and Technology, Taiwan
(2016) Marquis Who's Who in the World
(2015) Best paper award for young authors from the IEEE IT/COM Society Taipei/Tainan Chapter
(2015) Awarded Project for Excellent Junior Research Investigators, Ministry of Science and Technology, Taiwan
(2007) Graduate Students Study Abroad Program, National Science Council, Taiwan
(2006) Travel support, International symposium on information theory and its applications

EXPERIENCES

Professor, Department of Electrical Engineering, National Taiwan University, Taiwan, 10617 **Aug 2023 - now**

Associate Professor, Department of Electrical Engineering, National Taiwan University, Taiwan, 10617 **Aug 2021 - July 2023**

Associate Professor, Department of Electronic and Computer Engineering, National Taiwan University of Science and Technology, Taipei, Taiwan, 10607 **Aug 2016 -July 2021**

Assistant Professor, Department of Electronic and Computer Engineering, National Taiwan University of Science and Technology, Taipei, Taiwan, 10607 **Aug 2012 - July 2016**

Assistant Professor, Institute of Computer and Communication Engineering, National Taipei University of Technology, Taipei, Taiwan **Aug 2011 -July 2012**

Postdoc Research Associate, Institute of Communications Engineering, National Tsing Hua University **Apr 2009 - July 2011**
Worked on information theoretic security with Prof. Y.-W. Peter Hong

Visiting Graduate Student, The Ohio State University, Columbus, USA.
Host: Prof. Hesham El Gamal (IEEE Fellow, 2010). **Jan-Oct 2007**
Worked on information theoretic digital fingerprinting problems

Ph.D. student, Graduate Institute of Communication Engineering, National Taiwan University
Advisor: Prof. Hsuan-Jung Su **2004-2007**
Dissertation Topic: "Coding for vector dirty-paper channels: theory, implementation, and duality"

Intern, AT CHIP Co.,Ltd. Taipei, Taiwan **2000 - 2001**
Implemented a DSP-based digital voice encoder/decoder

M.S. Ph.D. program, Graduate Institute of Electronics Engineering, National Taiwan University
Ph.D. Candidate 2001-2004 **2000-2004**

B.S program, Department of Electrical Engineering, National Taiwan University **1996-2000**

Projects

Principle Investigator

"Communication-aware model training for deep generative adversarial network" NTD 1,926,000, National Science and Technology Council (NSTC), Taiwan, 2022/8/1-2024/7/31

"Low-delay Green Multi-user Communication" NTD 3,000,000, subproject of NTU core consortiums "6G Enabling Communication Technologies for the Sustainable Development Goals," NTU, Taiwan 2022/1/1-2024/12/31

"Data transmission and code design in 6G downlink with short blocklength" NTD 809,000, Ministry of Science and Technology (MOST), Taiwan, 2021/8/1-2022/7/31

"Information Theoretical Limits of Multiuser Communication over Heterogeneous Packet Erasure Channel" NTD 950,000, MOST, Taiwan, International Joint Project with *Alireza Vahid (University of Colorado, Denver)*, 2018/8/1-2021/7/31

"On data transmission and analysis with 5G machine type communications", NTD 2,867,000, MOST, Taiwan, *Project for Excellent Junior Research Investigators*, 2018/8/1-2021/7/31

"Opportunistic interference managements of bursty relay-aided channels for 5G applications", NTD 3,057,000, MOST, Taiwan, *Project for Excellent Junior Research Investigators* 2015/8/1-2018/7/31

"Cooperative Networks in the Presence of Malicious Relays: A Game Theoretic Study", NTD 2,814,000, National Science Council (NSC), Taiwan 2012/8/1-2015/7/31

"Cognitive Radio with Clean Relaying via Secondary Transceivers", NTD 610,000, NSC, Taiwan 2011/9/1-2012/11/30

Co-Principle Investigator

"Data Transmission and Training Signal Design for Physical Layer Secret Communications", NTD 5,170,000, NSC, Taiwan 2011/8/1-2014/7/31

Industry

"Coding for Communication Efficient Federated Learning", NTD 1,800,000, MediaTek Advanced Research Center, Taiwan, PI 2022/1/1-2023/06/31

"Combining symbolic execution and fuzzing technique to detect potential vulnerabilities and research on Android Container security protection techniques", NTD 1,100,000, Industrial Technology Re-

search Institute (ITRI), Taiwan, Co-PI 2018/1/1-2018/12/31

Professional Services

Conference Organization Committee

TPC Co-Chair, IEEE ICC Workshop on Fundamental and Practice of Short-Packet Ultra-Reliable Low-Latency Communications for 5G & Beyond (B5G-URLLC) 2019

Publication (Co-)Chair
IEEE Conference on Information Theory (ISIT) 2023
IEEE Global Communications Conference (Globecom) 2020
International Conference on Intelligent Green Building and Smart Grid (IGBSG) 2018

Finance Chair
IEEE Global Communications Conference (Globecom) 2025

Organization Committee
Themed session "Communication-efficient gradient compression and coding in distributed learning", IEEE Information Theory Workshop (ITW) 2022
East Asian School of Information Theory & Communication (EASITC) 2018

Technical Committee Member, IEEE ComSoc Communications and Information Security Technical Committee

Track chair, IGBSG 2014

Session Chair

IEEE Conference on Information Theory (ISIT) 2023
IEEE Global Communications Conference (Globecom) 2023
IEEE International Conference on Communications (ICC) 2019, 2020
IEEE International Conference on Green Computing and Communications (GreenCom) 2014
IEEE WPMC 2012

TPC member

IEEE ICC 2015, 2018-2024

IEEE Wireless Communications and Networking Conference (WCNC) 2019-2024

IEEE International Conference on Machine Learning for Communication and Networking (ICMLCN) 2024

IEEE GreenCom 2019

IEEE ICC Workshop on Wireless Physical Layer Security 2014-2016, IEEE WCNC Workshop on Physical-Layer Security 2016, IEEE CNS Workshop on Physical-layer Method for Wireless Security 2014

IEEE ICC International Workshop on Advanced PHY and MAC Techniques for Super Dense Wireless Networks 2015

IEEE Vehicular Technology Conference (VTC) 2010

Tutorial

2023 "Robust information processing and optimization for resilient 6G networks" with E. Jorswieck, P.-H. Lin, and T.-H.Chang, IEEE International Conference on Communications, Rome, Italy

Invited Talks

2022 NTHU "Optimal finite-length linear codes for broadcast packet erasure channels with feedback"

2022 Taiwan Telecommunications Annual Symposium "On data transmission and analysis with 5G machine type communications"

2021 Online executive workshop "Foundations on Machine Learning and Applications, hosted by Indian Institute of Technology Mandi

2020 NTHU "Optimal Stackelberg Strategy for Byzantine Distributed Quickest Detection in IoT"

2020 NYCU "No Feedback, No Problem: Capacity of Erasure Broadcast Channels with Single-User Delayed CSI"

2019 Spring Workshop on Information Theory and Communications "Opportunistic interference managements of bursty relay-aided channels for 5G applications"

2019 NTHU "No Feedback, No Problem: Capacity of Erasure Broadcast Channels with Single-User Delayed CSI"

2016 Tsinghua University, Beijing Jiaotong University, Beijing Institute of Technology "Single-User CSIT Can be Quite Useful for Bursty Gaussian Broadcast Channels"

2016 Fall Workshop on Information Theory and Communications "Bursty Gaussian Broadcast Channel and its Application to 5G"

2016 NTPU "Single-User CSIT Can be Quite Useful for Erasure Broadcast Channels"

2015 IEEE Hong Kong-Taiwan Joint Workshop on Information Theory and Communications (@Hong Kong) "On Bursty Multi-Pair Two-Way Relay Channels"

2014 IEEE International Conference on Green Computing and Communications "Fault tolerant quickest detection for power quality events in smart grid "

2014 NSYSU "Lattice codes for the multiple-access relay channel: decode and forward and compute and forward "

2014 Spring Workshop on Information Theory and Communications "On secrecy capacities of MIMO wiretap channels with partial channel state information"

2013 NTU "Graph based codes for channel/source coding with side information"

2011 NTHU "Cognitive Radio in Fading Channels: From Gel'fand-Pinsker Coding to Clean Relaying"

2011 CITI at Academia Sinica, "Information Theoretic Security: From Post-quantum to Multimedia"

2007 NTHU "Fingerprinting with Minimum Distance Decoding"

Reviewer

IEEE Communications Magazine

IEEE Network Magazine

IEEE Wireless Communications Magazine

IEEE Internet of Things Magazine

IEEE Transactions on Information Theory

IEEE Journal of Selected Areas in Communications

IEEE Journal of Selected Topics in Signal Processing

IEEE Transactions on Artificial Intelligence, ACM Transactions on Internet of Things, IEEE Consumer Electronics Magazine, IEEE Transactions on Information Forensics and Security, IEEE Transactions on Wireless Communications, IEEE Transactions on Signal Processing, IEEE Transactions on Communications, IEEE Transactions on Vehicular Technology, IEEE Transactions on Dependable and Secure Computing, IEEE Transactions On Cognitive Communications and Networking, IEEE Systems Journal, IEEE Signal Processing Letters, IEEE Wireless Communications Letters, Physical communications, Journal of Signal Processing Systems

IEEE ISIT, ICC, Globecom

IEEE Conference on Image Processing (ICIP), IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), IEEE International Symposium on Circuits and Systems (ISCAS), IEEE Conference on Ultra Wideband Systems and Technologies

Supervision of Junior Researchers

Hsin-Hua Shen, PhD student @NTU, awarded NSTC Graduate Research Fellowship (NTD 40000/month for three years)

Bagus Aris Saputra, PhD candidate @NTUST, awarded AAEON Fellowship

Asif Ali Zamzami, PhD candidate @NTUST, lecturer at Robotics and AI Engineering, Universitas Airlangga, Indonesia