

Shih-Fan Chou

Assistant Professor

Department of Computer Science & Information Engineering
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Research Interests

Blockchain Networks | 5G/6G Wireless and Mobile Networks

Broadband Cellular Networks | Performance Modeling and Analysis

Education

National Taiwan University (NTU)

Taipei, Taiwan

Ph.D. in Department of Computer Science and Information Engineering

- GPA: 4.2/4.3

National Chiao Tung University (NCTU)

Hsinchu, Taiwan

M.S. in Institute of Network Engineering

- GPA: 4.12/4.3 or 93.43 (100-point scale); Class Rank: 2nd

Dual degree: B.S. in Department of Computer Science | **B.S.** in Management Science

- GPA: 4.01/4.3 or 89.01 (100-point scale); Class Rank: 1st; received four Presidential Awards

Honors & Awards

2024	Outstanding Youth Electrical Engineer Award , The Chinese Institute of Electrical Engineering	<i>Taiwan</i>
2024	Excellence in Teaching Award , National Taiwan University of Science and Technology	<i>Taiwan</i>
2023	Outstanding Project Execution Achievement Award , National Science and Technology Council (國科會資訊工程學門優良計畫執行成果獎)	<i>Taiwan</i>
2022	The Exploration Research Award of Pan Wen Yuan Foundation (潘文淵考察研究獎) : 4 winners among all young researchers in Taiwan	<i>Taiwan</i>
2021	Young Scholars Research Award : 4 winners in Taiwan	<i>Taiwan</i>
2018	Ph.D. Dissertation Excellence Award , Institute of Information & Computing Machinery: 1 winner in Taiwan	<i>Taiwan</i>
2018	Ph.D. Dissertation Award , Taiwan Association for Web Intelligence Consortium: 1 winner in Taiwan	<i>Taiwan</i>
2018	MSRA Collaborative Research 2019 Grant Awards : 2 winners in Taiwan	<i>Asia</i>
2017	Phi Tau Phi Award : top 3% Ph.D. Graduates in the CSIE Dept.	<i>NTU, Taiwan</i>
2013	Google Anita Borg Scholarship : 3 winners in Taiwan	<i>Asia</i>
2011	Phi Tau Phi Award : top 3% M.S. Graduates in the CSIE Dept.	<i>NCTU, Taiwan</i>

Academic Experience

Northeastern University, Electrical and Computer Engineering College of Engineering

Boston, USA

Visiting Scholar

Jun. 2022 – Aug. 2022

TU Dortmund University, Communication Networks Institute

Dortmund, Germany

Postdoctoral Visiting Scholar

Oct. 2019 – Nov. 2019

Research Project

- Aerial Internet of Things Deployment with Edge Intelligence Enabled Privacy-Preserving Computing and Learning
Role: Principal Investigator; Duration: Two years (2023-2025)
Funding Agency: National Science and Technology Council, Taiwan
- Realization of the Cutting-Edge Deployment of Flying Base Stations in Artificial Intelligence Internet of Things (AIoT)
Role: Principal Investigator; Duration: Two years (2021-2023)

Funding Agency: Ministry of Science and Technology, Taiwan

3. 基於 MD101 智慧醫療系統之軟硬體開發
Role: Co-Principal Investigator; Duration: nine months (2023-2024)
Funding Agency: Onyx Healthcare Inc., Taiwan
4. 6G Deterministic Networks
Role: Principal Investigator; Duration: One year (2022-2023)
Funding Agency: Industrial Technology Research Institute (ITRI), Taiwan
5. Blockchain-Enabled Incentive and Trading Mechanism Design for AIoT Service Platform
Role: Co-Principal Investigator; Duration: One year (2019-2020)
Funding Agency: Microsoft Research Asia (MSRA), Asia

Selected Publications

Journal Articles

1. **Shih-Fan Chou**, Yi-Lin Kuo, Yuan-Yao Shih, “A Secure Blockchain-Based Data Trading Framework in AIoT Networks”, *submitted to IEEE Transactions on Network and Service Management*, 2024.
2. **Shih-Fan Chou**, Ai-Chun Pang, and Ya-Ju Yu, “Energy-Aware 3D Unmanned Aerial Vehicle Deployment for Network Throughput Optimization,” *IEEE Transactions on Wireless Communications*, vol. 19, no. 1, pp. 563-578, Jan. 2020. (**Impact Factor: 10.4**)
3. **Shih-Fan Chou**, Hsiu-Wen Yen, and Ai-Chun Pang, “A REM-enabled Diagnostic Framework in Cellular-based IoT Networks,” *IEEE Internet of Things Journal*, vol. 6, no. 3, pp. 5273-5284, June 2019. (**Impact Factor: 10.6**)
4. Meng-Hsun Tsai, Ching-Chih Chuang, **Shih-Fan Chou**, Ai-Chun Pang, and Guan-Yu Chen, “Enabling Efficient and Consistent Network Update in Wireless Data Centers,” *IEEE Transactions on Network and Service Management*, vol. 16, no. 2, pp. 505-520, June 2019. (**Impact Factor: 5.3**)
5. **Shih-Fan Chou**, Ya-Ju Yu, and Ai-Chun Pang, “Mobile Small Cell Deployment for Service Time Maximization over Next Generation Cellular Networks,” *IEEE Transactions on Vehicular Technology*, vol. 66, no. 6, pp. 5398-5408, June 2017. (**Impact Factor: 6.8**)

Conference Papers

1. **Shih-Fan Chou**, and Che-Yu Qiu, “Efficient Data Storage: Leveraging Blockchain and IPFS Techniques for Cost Minimization”, *accepted and to appear in IEEE International Conference on Metaverse*.
2. **Shih-Fan Chou**, Chen-Yu Yu, and Sok-Ian Sou, “Efficient Multi-UAV-Aided Communication Service Deployment in Disaster-Resilient Wireless Networks”, *IEEE Vehicular Networking Conference (VNC)*, pp. 1-8, 2023.
3. **Shih-Fan Chou**, Yi-Lin Kuo, Yuan-Yao Shih, “A Privacy Preserving Blockchain Based Framework for AIoT Data Exchange”, *IEEE Wireless Communications and Networking Conference (WCNC)*, pp. 1170-1175, Apr. 2022.
4. Tien-Jan Hsieh, Ching-Chih Chuang, **Shih-Fan Chou**, and Ai-Chun Pang, “Traffic-Aware Network Update in Software-Defined NFV Networks,” *IEEE International Symposium on Wireless Personal Multimedia Communications (WPMC)*, pp. 1-6, Oct. 2020.
5. **Shih-Fan Chou**, Ya-Ju Yu, Ai-Chun Pang, and Tzu-An Lin, “Energy-Aware 3D Aerial Small-Cell Deployment over Next Generation Cellular Networks,” *IEEE Vehicular Technology Conference (VTC Spring)*, pp. 1-5, Jun. 2018.
6. **Shih-Fan Chou**, Hsiu-Wen Yen, Yen-Ju Chen, Ai-Chun Pang, and Ting-Wu Ho, “Coverage Maximization with Switched Multi-Element Antennas in Next Generation Cellular Networks,” *IEEE Vehicular Technology Conference (VTC-Fall)*, pp. 1-5, Sep. 2017.
7. Te-Chuan Chiu, Ya-Ju Yu, **Shih-Fan Chou**, Yu-Ting Tsai, and Ai-Chun Pang, “Efficient Multi-radio Selections for Device-to-Device in Wireless Cellular Networks,” *International Computer Symposium (ICS)*, pp. 142-147, December 2016.
8. **Shih-Fan Chou**, Yu-Chia Hsu, and Ai-Chun Pang, “Utility-Based Scheduling for In-Taxi Video Advertising Systems,” *IEEE Eighth International Conference on Ubiquitous and Future Networks (ICUFN)*, pp. 617-622, July 2016.
9. **Shih-Fan Chou**, Te-Chuan Chiu, Ya-Ju Yu, and Ai-Chun Pang, “Mobile Small Cell Deployment for Next Generation Cellular Networks,” *IEEE Global Communications Conference Exhibition & Industry Forum (GLOBECOM)*, pp. 4852-4857, December 2014.
10. Yu-Chia Hsu, Chih-Sheng Wang, **Shih-Fan Chou**, Ai-Chun Pang, Pi-Chen Chiu, and Shu-Jye Chang, “Design and Implementation of Taxi Advertisement System,” *IEEE International Conference on Electrical Engineering and Computer Science (ICEECS)*, pp.1-6, November 2014.

11. **Shih-Fan Chou**, Hsi-Lu Chao, and Chia-Lung Liu, "An Efficient Measurement Report Mechanism for Long Term Evolution Networks," *IEEE Personal Indoor and Mobile Radio Communications (PIMRC)*, pp. 197-201, September 2011.
12. **Shih-Fan Chou**, Jen-Hsi Liu, Hsi-Lu Chao, Tzu-Chi Guo, Chia-Lung Liu, and Feng-Jie Tsai, "Performance Enhancement of Contention-Based Bandwidth Request Mechanism in IEEE 802.16 WiMAX Networks," *IEEE Personal Indoor and Mobile Radio Communications (PIMRC)*, pp. 1287-1292, September 2010.

Patent

1. Chia-Lung Liu, Pi-Chen Chiu, Hsi-Lu Chao and **Shih-Fan Chou**, System and Method for Measuring and Adjusting an LTE Network (with ICL/ITRI), ROC Patent No. 465130, 2014-2030. Taiwan

Professional Talks

Conference Tutorials

- Jan 2023 **IEEE Consumer Communications & Networking Conference, Tutorial Speaker** Las Vegas, USA
 "6G and beyond for meta verse-ready networks: Enabling technologies, challenges, and open research issues"

Academic Talks

- Mar 2024 **Department of Computer Science and Information Engineering, National Taiwan Normal University**
 "Advances, Challenges, and Prospects of Key Technologies in the 6G Era" Taiwan
- Jan 2024 **Research Center for Information Technology Innovation, Academia Sinica** Taiwan
 "Progressing Beyond 5G: Vision, Essential Technologies, and Challenges in the 6G Era"
- Feb 2023 **Department of Computer Science, National Chengchi University** Taiwan
 "The Evolution from 5G to 6G: Vision, Key Technologies, and Challenges"
- Oct 2022 **Taiwan International Graduate Program, Academia Sinica** Taiwan
 "A Privacy-Preserving Blockchain-Based Framework for AIoT Data Exchange"
- Oct 2022 **Department of Computer Science, National Yang Ming Chiao Tung University** Taiwan
 "6G Wireless Networks: Vision, Key Technologies, and Challenges"
- Mar 2022 **Data Science Degree Program, National Taiwan University & Academia Sinica** Taiwan
 "Utilizing and advancing smart IoT technology integrated with 5G/6G network systems"
- May 2020 **Department of Computer Science, National Chiao Tung University** Taiwan
 "Moving Small-Cell Deployment in Next-Generation Mobile Networks"
- Nov 2019 **Communication Networks Institute, TU Dortmund University** Germany
 "Mobile Small Cell Deployment in Wireless Communication Systems"

Professional Activities

Associate Editor

IEEE Wireless Communications Letters (IEEE WCL), 2024

Tutorial Speaker

[IEEE CCNC 2023] IEEE Consumer Communications & Networking Conference, Las Vegas, NV, USA, Jan.2023
 "6G and beyond for meta verse-ready networks: Enabling technologies, challenges, and open research issues"

Conference Organizing Committee

Aug 2022 The 11th IEEE Non-Volatile Memory Systems and Applications Symposium, registration chair

Technical Program Committee

IEEE Global Communications Conference (Globecom), 2020, 2021, 2022, 2023

IEEE Wireless Communications & Networking Conference (WCNC), 2021, 2022, 2023, 2024

Journal Reviewer

IEEE Internet of Things Journal (IoT)

IEEE Transactions on Vehicular Technology (TVT)

IEEE Transactions on Mobile Computing (TMC)

IEEE Transactions on Wireless Communications (TWC)

IEEE Journal on Selected Areas in Communications (JSAC)

IEEE/ACM Transactions on Networking (ToN)

IEEE Transactions on Green Communications and Networking (TGCN)

Conference Reviewer

IEEE International Conference on Computer Communications (INFOCOM)
IEEE International Conference on Distributed Computing Systems (ICDCS)
IEEE Global Communications Conference (GLOBECOM)
IEEE Wireless Communications & Networking Conference (WCNC)
IEEE International Conference on Communications (ICC)