

Jianqing Liu, Ph.D.

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last updated: January 12, 2025

EDUCATION

| | |
|---|-----------|
| Ph.D. in Computer Engineering <i>ECE Department, University of Florida</i> | May 2018 |
| B.Eng. in Electrical Engineering <i>EE Department, University of Electronic Science and Technology of China</i> | June 2013 |

EMPLOYMENT

| | |
|--|-------------|
| Assistant Professor <i>CS Department, North Carolina State University (NC State)</i> | 2022 - Now |
| Assistant Professor <i>ECE Department, University of Alabama in Huntsville (UAH)</i> | 2018 - 2022 |
| Research Intern <i>Teledyne LeCroy, Chestnut Ridge, NY, USA</i> | Summer 2014 |

HONORS AND AWARDS

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|---|-----------|
| COE Outstanding Faculty Research Award, UAH | 2022 |
| COE Outstanding Junior Faculty Award, UAH | 2022 |
| NSF CAREER Award | 2021 |
| New Faculty Research Award, UAH | 2021 |
| Best Track Paper Award, IEEE Int. Conf. on Mobility, Sensing and Networking (MSN) | 2020 |
| Best Paper Award, IEEE Int. Conf. on Hot Information-Centric Networking (HotICN) | 2019 |
| Aspiring PI Award, Smart and Connected Health (SCH) program, NSF | 2019 |
| Travel Grant, Professional Development Workshop, NSA | 2018 |
| Best Journal Paper Award, IEEE Tech. Committee on Green Comm. & Comp. | 2018 |
| Student Travel Grant for IEEE ICDCS, IEEE Computer Society | 2017 |
| Graduate Student Travel Grant, UF | 2017 |
| Student Travel Grant for IEEE GLOBECOM, NSF | 2016 |
| Graduate Student Fellowship, UF | 2014-2018 |
| Outstanding Graduate of Sichuan Province, Sichuan, China | 2013 |
| Best Paper Award, IEEE International Workshop on MMWCST | 2012 |

TEACHING

Instructor

2018 - Now

- ◇ CSC401: Data and Computer Communications Networks, NC State, F'24
- ◇ CSC573: Internet Protocols, NC State, S'24'25
- ◇ CSC591/ECE592: Quantum Communications and Network, NC State, S'23
- ◇ CSC/ECE 791-06: Quantum Communications and Network, NC State, F'22
- ◇ CPE211: Introduction to Computer Programming (C++), UAH, F'20
- ◇ CPE348: Introduction to Computer Networks, UAH, F'18'19'20'21, S'19'20'21'22
- ◇ CPE498: Cybersecurity Capstone, UAH, S'20
- ◇ CPE499: Project in Computer Engineering, UAH, S'19
- ◇ CPE648: Advanced Computer Networks, UAH, F'19'21

Teaching Assistant

2013 - 2017

- ◇ EEL6591: Wireless Networks, UF, S'17
- ◇ EEL4598/5718: Computer Communications, UF, F'16
- ◇ 14:332:382: Electromagnetic Fields, Rutgers University, S'14
- ◇ 14:332:363: Electronic Devices Laboratory, Rutgers University, F'13

MENTORING

Postdoc Scholars

- ◇ Shiqian Guo

PhD Advisees

- ◇ Tingxiang Ji, Stuart Pelletier, Hui Sun, Thinh Le, Julian Guam

MS Advisees (with thesis)

- ◇ <Positions Available>

Alumni

- ◇ Sahil Purohit, MS, S'25
 - Thesis: Revisit DCTCP for Distributed Machine Learning Workloads
 - Initial placement: Software Engineer at Meta
- ◇ Raj Madhu, MS, S'25
 - Thesis: Software Virtualization and Resource Allocation in Quantum Networks
 - Initial placement: TBD
- ◇ Steven Puckett, PhD, F'23
 - Dissertation: Design of Secure, Low-power Medical IoTs with Precise Time Synchronization
 - Initial placement: Instructor at the University of North Alabama
- ◇ Sopan Sarkar, MS, S'20
 - Thesis: Radio-Layer Vulnerabilities of Bluetooth Low Energy: Exploitation and Attacks
 - Initial placement: PhD at University of Arizona
- ◇ William Siota, BS, S'19
 - Initial placement: Software Developer at Western Digital

PUBLICATIONS AND PRESENTATIONS

Articles Under Review (*underlined authors are my advisees*)

1. K. Mooney, M. Pinon, S. Haq, H. Das, **J. Liu** and N. Gong, “Low-Cost Low-Power Failure-Tunable Memory for Differential Privacy,” IEEE Transactions on Circuits and Systems II ([IEEE TCASII](#)), under reiew.
2. T. Ji, **J. Liu** and Z. Zhang, “Distributing Arbitrary Quantum Graph States by Graph Transformation,” IEEE Transactions on Communications ([IEEE TCOM](#)), under reiew.
3. H. Esmat, X. Liu, B. Lorenzo and **J. Liu**, “Outage-Aware Multi-Domain Network Slicing for Satellite-Airborne-Terrestrial Networks with Multiple Configurations,” IEEE Transactions on Wireless Communications ([IEEE TWC](#)), under reiew.
4. S. Guo, **J. Liu** and B. Lorenzo, “Personalized Federated Learning by Energy-Efficient UAV Communications,” IEEE Transactions on Wireless Communications ([IEEE TWC](#)), under reiew.

Referred Journal Articles

1. **J. Liu**, T. Le, T. Ji, R. Yu, D. Farfurnik, G. Byrd and D. Stancil, “The Road to Quantum Internet: Progress in Quantum Network Testbeds and Major Demonstrations,” Elsevier Progress in Quantum Electronics ([Elsevier PQE](#)), Volume 99, 100551, 2025.
2. H. Gu, Z. Li, R. Yu, X. Wang, F. Zhou, **J. Liu**, and G. Xue, “FENDI: Toward High-Fidelity Entanglement Distribution in the Quantum Internet,” IEEE/ACM Transactions on Networking ([IEEE/ACM TON](#)), vol.32, no.6, pp.5033-5048, 2024.
3. **J. Liu**, N. Gong, and H. Das, “Two Birds with One Stone: Differential Privacy by Low-power SRAM Memory,” IEEE Transactions on Dependable and Secure Computing ([IEEE TDSC](#)), vol.21, no.6, pp.5706-5719, 2024.
4. **J. Liu** and N. Gong, “Privacy by Memory Design: Visions and Open Problems,” IEEE MICRO Magazine ([IEEE MICRO](#)), vol.44, no.1, pp.49-58, 2024 (**Feature Article**).
5. X. Pei, X. Deng, S. Tian, **J. Liu**, and K. Xue, “Privacy-Enhanced Graph Neural Network for Decentralized Local Graphs,” IEEE Transactions on Information Forensics and Security ([IEEE TIFS](#)), vol.19, pp.1614-1629, 2024.
6. M. Wang, Y. Li, **J. Liu**, T. Guo, H. Wu, and F. Lau, “Neural layered min-sum decoders for cyclic codes,” Elsevier Physical Communications, vol.61, pp.102194, 2023.
7. S. Puckett, **J. Liu**, S. Yoo, and T. Morris, “A Secure and Efficient Protocol for LoRa Using Cryptographic Hardware Accelerators,” IEEE Internet of Things Journal ([IEEE IoT-J](#)), vol.10, No.24, pp.22143-22152, 2023.
8. **J. Liu**, C. Zhang, K. Xue, and Y. Fang, “Privacy Preservation in Multi-Cloud Secure Data Fusion for Infectious-Disease Analysis,” IEEE Transactions on Mobile Computing ([IEEE TMC](#)), vol.22, no.7, pp.4212-4222, 2023.
9. S. Jiang, **J. Liu**, Y. Liu, J. Chen, L. Wang, and Y. Zhou, “Query Integrity Meets Blockchain: A Privacy-Preserving Verification Framework for Outsourced Encrypted Data,” IEEE Transactions on Services Computing ([IEEE TSC](#)), vol.16, no.3, pp.2100-2113, 2023.
10. Y. Niu, L. Wei, C. Zhang, **J. Liu**, and Y. Fang, “Towards Anonymous yet Accountable Authentication for Public Wi-Fi Hotspot Access with Permissionless Blockchains,” IEEE Transactions on Vehicular Technology ([IEEE TVT](#)), vol.72, no.3, pp.3904-3913, 2023.
11. N. Gai, K. Xue, B. Zhu, J. Yang, **J. Liu**, and D. He, “An Efficient Data Aggregation Scheme with Local Differential Privacy in Smart Grid,” Digital Communications and Networks, vol.8, no.3, pp.333-342, 2022.

12. L. Chen, K. Xue, J. Li, N. Yu, R. Li, **J. Liu**, Q. Sun, and J. Lu, "A Heuristic Remote Entanglement Distribution Algorithm on Memory-Limited Quantum Paths," *IEEE Transactions on Communications* ([IEEE TCOM](#)), vol.70, no.11, pp.7491-7504, 2022.
13. R. Yu, R. Dutta, and **J. Liu**, "On Topology Design for the Quantum Internet," *IEEE Network* ([IEEE Network](#)), vol.36, no.5, pp.64-70, 2022.
14. K. Xue, X. Luo, Y. Ma, C. Wang, **J. Liu**, and D. Wei, "A Distributed Authentication Scheme Based on Smart Contract for Roaming Service in Mobile Vehicular Networks," *IEEE Transactions on Vehicular Technology* ([IEEE TVT](#)), vol.71, no.5, pp.5284-5297, 2022.
15. Z. Li, K. Xue, Q. Jia, J. Li, D. Wei, **J. Liu**, and N. Yu, "A Cluster-based Networking Approach for Large-scale and Wide-area Quantum Key Agreement," *Quantum Information Processing* ([Springer QIP](#)), vol.21, no.5, pp.1-18, 2022.
16. S. Jiang, **J. Liu**, Y. Zhou, and Y. Fang, "FVC-Dedup: A Secure Report Deduplication Scheme in a Fog-assisted Vehicular Crowdsensing System," *IEEE Transactions on Dependable and Secure Computing* ([IEEE TDSC](#)), vol.19, no.4, pp.2727-2740, 2021.
17. **J. Liu**, Y. Pang, H. Ding, Y. Cai, H. Zhang, and Y. Fang, "Optimizing IoT Energy Efficiency on Edge (EEE): a Cross-layer Design in a Cognitive Mesh Network," *IEEE Transactions on Wireless Communications* ([IEEE TWC](#)), vol.20, no.4, pp.2472-2486, 2021.
18. Z. Li, K. Xue, J. Li, N. Yu, **J. Liu**, D. Wei, Q. Sun, and J. Lu, "Building a Large-scale and Wide-area Quantum Internet based on an OSI-alike Model," *China Communications*, vol.18, no.10, pp.1-14, 2021 (**Feature Article**).
19. Y. Xing, K. Xue, Y. Zhang, J. Han, J. Li, **J. Liu**, and R. Li, "A Low-Latency MPTCP Scheduler for Live Video Streaming in Mobile Networks," *IEEE Transactions on Wireless Communications* ([IEEE TWC](#)), vol.20, no.11, pp.7230-7242, 2021.
20. P. He, K. Xue, J. Yang, Q. Xia, **J. Liu**, and D. Wei, "FASE: Fine-grained Accountable and Space-Efficient Access Control for Multimedia Content with In-network Caching," *IEEE Transactions on Network and Service Management* ([IEEE TNSM](#)), vol.18, no.4, pp. 4462-4475, 2021.
21. H. Tian, K. Xue, S. Li, J. Xu, **J. Liu**, J. Zhao, and D. Wei, "Enabling Cross-chain Transactions: A Decentralized Cryptocurrency Exchange Protocol," *IEEE Transactions on Information Forensics & Security* ([IEEE TIFS](#)), vol.16, pp.3928-3941, 2021.
22. J. Fu, Z. Liao, **J. Liu**, S. Smith, and J. Wang, "Memristor Based Variation Enabled Differentially Private Learning Systems for Edge Computing in IoT," *IEEE Internet of Things Journal* ([IEEE IoT-J](#)), vol.8, no.12, pp. 9672-9682, 2021.
23. D. Han, W. Chen, and **J. Liu**, "Energy-Efficient UAV Communications under Stochastic Trajectory: A Markov Decision Process Approach," *IEEE Transactions on Green Communications and Networking* ([IEEE TGCN](#)), vol.5, no.1, pp.106-118, 2021.
24. **J. Liu**, C. Zhang, B. Lorenzo, and Y. Fang, "DPavatar: A Real-Time Location Protection Framework for Incumbent Users in Cognitive Radio Networks," *IEEE Transactions on Mobile Computing* ([IEEE TMC](#)), vol.19, no.3, pp.552-565, 2020.
25. J. Li, K. Xue, **J. Liu**, and Y. Zhang, "A User-Centric Handover Scheme for Ultra-Dense LEO Satellite Networks," *IEEE Wireless Communications Letters* ([IEEE WCL](#)), vol.9, no.11, pp. 1904-1908, 2020.
26. S. Jiang, **J. Liu**, L. Wang, Y. Zhou, Y. Fang, "ESAC: An Efficient and Secure Access Control Scheme in Vehicular Named Data Networking," *IEEE Transactions on Vehicular Technology* ([IEEE TVT](#)), vol.69, no.9, pp. 10252-10263, 2020.
27. Y. Xing, J. Han, K. Xue, **J. Liu**, M. Pan, and P. Hong, "MPTCP Meets Big Data: Customizing Transmission Strategy for Various Data Flows," *IEEE Network* ([IEEE Network](#)), vol.34, no.4, pp.35-41, 2020.

28. J. Li, K. Xue, D. Wei, **J. Liu**, and Y. Zhang, "Energy Efficiency and Traffic Offloading Optimization in Integrated Satellite/Terrestrial Radio Access Networks," IEEE Transactions on Wireless Communications ([IEEE TWC](#)), vol.19, no.4, pp. 2367-2381, 2020.
29. B. Feng, C. Zhang, **J. Liu**, and Y. Fang, "Turning Waste into Wealth: Free Control Message Transmissions in Indoor WiFi Networks," IEEE Transactions on Mobile Computing ([IEEE TMC](#)), vol.19, no.10, pp.2475-2488, 2020.
30. J. Li, K. Xue, **J. Liu**, Y. Zhang, and Y. Fang, "An ICN/SDN-based Network Architecture and Efficient Content Retrieval for Future Satellite-Terrestrial Integrated Networks," IEEE Network ([IEEE Network](#)), vol.34, no.1, pp.188-195, 2020.
31. J. Pei, P. Hong, M. Pan, **J. Liu**, and J. Zhou, "Optimal VNF Placement via Deep Reinforcement Learning in SDN/NFV-Enabled Networks," IEEE Journal on Selected Areas in Communications ([IEEE JSAC](#)), vol.38, no.2, pp.263-278, 2020.
32. B. Feng, C. Zhang, **J. Liu**, and Y. Fang, "D2D Communications Assisted Traffic Offloading in Integrated Cellular-WiFi Networks," IEEE Internet of Things Journal ([IEEE IoT-J](#)), vol.6, no.5, pp.8670-8680, 2019.
33. Y. Li, H. Ding, L. Zhang, **J. Liu**, X. Fang, Y. Fang, and M. Xiao, "Machine Learning Based Handovers for Sub-6 GHz and mmWave Integrated Vehicular Networks," IEEE Transactions on Wireless Communications ([IEEE TWC](#)), vol.18, no.10, pp.4873-4885, 2019.
34. J. Han, Y. Li, **J. Liu**, and M. Zhao, "An Efficient Lucas Sequence-based Batch Auditing Scheme for the Internet of Medical Things," IEEE Access, vol.7, no.1, pp.10077-10092, 2019.
35. S. Jiang, X. Zhu, L. Guo, and **J. Liu**, "Publicly Verifiable Boolean Query Over Outsourced Encrypted Data," IEEE Transactions on Cloud Computing ([IEEE TCC](#)), vol.7, no.3, pp.799-813, 2019.
36. **J. Liu**, C. Zhang, and Y. Fang, "EPIC: A Differential Privacy Framework to Defend Smart Homes Against Internet Traffic Analysis," IEEE Internet of Things Journal ([IEEE IoT-J](#)), vol.5, no.2, pp.1206-1217, 2018.
37. B. Lorenzo, A. Shafigh, **J. Liu**, F. Gonzalez-Castano, and Y. Fang, "Data and Spectrum Trading Policies in a Trusted Cognitive Radio Dynamic Network Architecture," IEEE/ACM Transactions on Networking ([IEEE/ACM TON](#)), vol.26, no.3, pp.1502-1516, 2018.
38. H. Ding, C. Zhang, X. Li, **J. Liu**, M. Pan, Y. Fang and S. Chen, "Session-Based Cooperation in Cognitive Radio Networks: A Network-Level Approach," IEEE/ACM Transactions on Networking ([IEEE/ACM TON](#)), vol.26, no.2, pp.685-698, 2018.
39. Y. Pang, H. Ding, **J. Liu**, Y. Fang, and S. Chen, "A UHF RFID based System for Children Tracking," IEEE Internet of Things Journal ([IEEE IoT-J](#)), vol. 5, no.6, pp.5055-5064, 2018.
40. **J. Liu**, H. Ding, Y. Cai, H. Yue, Y. Fang, and S. Chen, "An Energy-Efficient Strategy for Secondary Users in Cooperative Cognitive Radio Networks for Green Communications," IEEE Journal on Selected Areas in Communications ([IEEE JSAC](#)), vol.34, no.12, pp.3195-3207, 2016 (**IEEE TCGCC Best Journal Paper Award**).
41. **J. Liu**, K. Song, and Y. Fan, "UWB BPF with Triple Notched bands Using Novel Dual-mode SIR and Asymmetrical Coupling Structure," Journal of ElectroMagnetic Waves and Applications ([JEMWA](#)), vol.26, no.16, pp.2112-2120, 2012.

Referred Conference Articles (*underlined authors are my students*)

1. H. Sun, K. Mooney, M. Pinon, T. Ji, H. Das, N. Gong, and **J. Liu**, "Low-power and Computing-free Privacy Design for IoT Systems," IEEE Computer Society Annual Symposium on VLSI ([IEEE ISVLSI'24](#)), Knoxville, USA, 2024.
2. Z. Yang, Z. Li, Y. Wang, **J. Liu**, M. Chen, and Y. Liu, "GemNet: Analysis and Prediction of Building

- Materials for Optimizing Indoor Wireless Networks,” IEEE International Conference on Communications ([IEEE ICC’24](#)), Denver, USA, 2024.
3. X. Li, L. Wei, C. Zhang, and **J. Liu**, “ParaEthereum: Private and Parallel Smart Contracts with Trusted Hardware,” IEEE International Conference on Communications ([IEEE ICC’24](#)), Denver, USA, 2024.
 4. S. Pelletier, R. Yu, G. Rouskas, and **J. Liu**, “Qubit Recycling in Entanglement Distillation,” IEEE International Conference Quantum Computing and Engineering ([IEEE QCE’23](#)), Seattle, USA, 2023.
 5. **J. Liu**, S. Dong, T. Morris, and Y. Fang, “Social Equality-Aware Resource Allocation for Post-Disaster Communication Restoration,” IEEE International Conference on Computer Communications and Networks ([IEEE ICCCN’23](#)), Honolulu, USA, 2023.
 6. H. Esmat, B. Lorenzo, and **J. Liu**, “LEONS: Multi-Domain Network Slicing Configuration and Orchestration for Satellite-Terrestrial Edge Computing Networks,” IEEE International Conference on Communications ([IEEE ICC’23](#)), Rome, Italy, 2023.
 7. H. Huang, L. L. B. Zhang, L. Wei, C. Zhang, and **J. Liu**, “A PATE-based Approach for Training Graph Neural Networks under Label Differential Privacy,” IEEE IEEE Global Communications Conference ([IEEE GLOBECOM’23](#)), Kuala Lumpur, Malaysia, 2023.
 8. Y. Jie, Y. Ren, Q. Wang, Y. Xie, C. Zhang, L. Wei, **J. Liu**, and R. Zhuang, “Multi-Party Secure Computation with Intel SGX for Graph Neural Networks,” IEEE International Conference on Communications ([IEEE ICC’22](#)), Seoul, South Korea, 2022.
 9. W. Wei, J. Han, Y. Xing, K. Xue, **J. Liu**, and R. Zhuang, “MP-VR: An MPTCP-Based Adaptive Streaming Framework for 360-degree Virtual Reality Videos,” IEEE International Conference on Communications ([IEEE ICC’21](#)), Montreal, Canada, 2021.
 10. N. Gai, K. Xue, P. He, B. Zhu, **J. Liu**, and D. He, “An Efficient Data Aggregation Scheme with Local Differential Privacy in Smart Grid,” The 16th International Conference on Mobility, Sensing and Networking ([IEEE MSN’20](#)), Tokyo, Japan, 2020 (**Best Track Paper Award**).
 11. S. Jiang, **J. Liu**, L. Huang, H. Wu, and Y. Zhou, “Vehicular Edge Computing Meets Cache: An Access Control Scheme for Content Delivery,” IEEE International Conference on Communications ([IEEE ICC’20](#)), Dublin, Ireland, 2020.
 12. J. Qin, K. Xue, Y. Chen, W. Wei, **J. Liu**, and H. Yue, “STNDN: Link Aware Segmented Transmission for Named Data Networking,” IEEE International Conference on Hot Information-Centric Networking ([IEEE HotICN’19](#)), Chongqing, China, 2019 (**Best Paper Award**).
 13. S. Sarkar, **J. Liu**, and E. Jovanov, “A Robust Algorithm for Sniffing BLE Long-Lived Connections in Real-time,” IEEE Global Communications Conference ([IEEE GLOBECOM’19](#)), Hawaii, USA, 2019.
 14. Y. Xie, C. Zhang, L. Wei, Y. Niu, F. Wang, and **J. Liu**, “A Privacy-preserving Ethereum Lightweight Client Using PIR,” IEEE/CIC International Conference on Communications in China ([IEEE/CIC ICC’19](#)), Changchun, China, 2019.
 15. P. He, K. Xue, J. Xu, Q. Xia, **J. Liu**, and H. Yue, “Attribute-Based Accountable Access Control For Multimedia Content With In-Network Caching,” IEEE International Conference on Multimedia and Expo ([IEEE ICME’19](#)), Shanghai, China, 2019.
 16. S. Jiang, **J. Liu**, L. Wang, and S. Yoo, “Verifiable Search Meets Blockchain: A Privacy-Preserving Framework for Outsourced Encrypted Data,” IEEE International Conference on Communications ([IEEE ICC’19](#)), Shanghai, China, 2019.
 17. Y. Wang, W. Hu, **J. Liu**, M. Pan, P. Zhang, and J. Lin, “An Energy-Efficient Design for Mobile UAV Fire Surveillance Networks,” IEEE International Conference on Communications ([IEEE ICC’19](#)), Shanghai, China, 2019.

18. **J. Liu**, Y. Hu, H. Yue, Y. Gong, and Y. Fang, "A Cloud-based Secure and Privacy-Preserving Clustering Analysis of Infectious Disease," IEEE Symposium on Privacy-Aware Computing ([IEEE PAC'18](#)), Washington D.C., USA, 2018.
19. S. Jiang, **J. Liu**, M. Duan, L. Wang, and Y. Fang, "Secure and Privacy-Preserving Report De-duplication in the Fog-Based Vehicular Crowdsensing System," IEEE Global Communications Conference ([IEEE GLOBECOM'18](#)), Abu Dahbi, UAE, 2018.
20. S. Jiang, **J. Liu**, L. Wang, and Y. Fang, "A Secure Data Forwarding Scheme in Vehicular Named Data Networking," IEEE Global Communications Conference ([IEEE GLOBECOM'18](#)), Abu Dahbi, UAE, 2018.
21. D. Han, W. Chen, **J. Liu**, and Y. Fang, "A Probabilistic Scheduling Policy for Energy Efficient UAV Communications with Delay Constraints," IEEE Global Communications Conference ([IEEE GLOBECOM'18](#)), Abu Dahbi, UAE, 2018.
22. H. Zhou, Y. Niu, **J. Liu**, C. Zhang, L. Wei, and Y. Fang, "A Privacy-Preserving Networked Hospitality Service with the Bitcoin Blockchain," The 13th International Conference on Wireless Algorithms, Systems, and Applications ([WASA'18](#)), Tianjin, China, 2018.
23. K. Yang, **J. Liu**, C. Zhang, and Y. Fang, "Adversarial Examples Against the Deep Learning Based Network Intrusion Detection Systems," The IEEE Military Communications Conference ([IEEE MILOCOM'18](#)), Los Angeles, USA, 2018.
24. Y. Hu, X. Li, **J. Liu**, H. Ding, Y. Gong, and Y. Fang, "Mitigating Traffic Analysis Attack in Smartphones with Edge Network Assistance," IEEE International Conference on Communications ([IEEE ICC'18](#)), Kansas City, Missouri, 2018.
25. B. Feng, **J. Liu**, C. Zhang, and Y. Fang, "Communication through Symbol Silence: Towards Free Control Messages in Indoor WLANs," IEEE International Conference on Distributed Computing Systems ([IEEE ICDCS'17](#)), Atlanta, USA, 2017 (*acceptance ratio: 16.9%*).
26. Y. Niu, L. Wei, C. Zhang, **J. Liu**, and Y. Fang, "An Anonymous and Accountable Authentication Scheme for Wi-Fi Hotspot Access with the Bitcoin Blockchain," IEEE/CIC International Conference on Communications in China ([IEEE/CIC ICC'17](#)), Qingdao, China, 2017.
27. **J. Liu**, C. Zhang, H. Ding, H. Yue, and Y. Fang, "Policy-based Privacy-Preserving Scheme for Primary Users in Database-driven Cognitive Radio Networks," IEEE Global Communications Conference ([IEEE GLOBECOM'16](#)), Washington D.C., USA, 2016.
28. **J. Liu**, H. Yue, H. Ding, P. Si, and Y. Fang, "An Energy Efficient Cooperative Strategy for Secondary Users in Cognitive Radio Networks," IEEE Global Communications Conference ([IEEE GLOBECOM'15](#)), San Diego, USA, 2015.
29. H. Ding, H. Yue, **J. Liu**, P. Si, and Y. Fang, "Energy-Efficient Secondary Traffic Scheduling with MIMO Beamforming," IEEE Global Communications Conference ([IEEE GLOBECOM'15](#)), San Diego, USA, 2015.
30. S. Jiang, X. Zhu, L. Guo, and **J. Liu**, "Publicly Verifiable Boolean Query Over Outsourced Encrypted Data," IEEE Global Communications Conference ([IEEE GLOBECOM'15](#)), San Diego, USA, 2015.
31. **J. Liu**, K. Song, T. Pan, J. Zha, Y. Fan, and C. Zhong, "Ultra-Wideband (UWB) Bandpass Filter with Inductance-Loaded Y-Shaped Multiple-Mode Resonator," IEEE International Workshop on Microwave & Millimeter Wave Circuits & System Technology ([MMWCST'12](#)), Chengdu, China, 2012 (**Best Paper Award**).

Selected Scholarly Presentations

1. "Protocol Design For Quantum Entanglement Distribution Networks," Triangle Quantum Seminar, Raleigh, 2025.

2. “Entanglement Distribution Networks: From the Lens of Protocol Design,” Quantum Information Technology Workshop, University of Michigan, Ann Arbor, 2025.
3. “Quantum Graph States: Theory, Practice, and Applications,” Department of Electronic Engineering, Kyung Hee University, South Korea, 2024.
4. “Quantum Communications: Applications and Challenges,” Department of Computer Science, City University of Hong Kong, Hong Kong, 2024.
5. “Quantum Networking for Distributed Quantum Computing Systems,” NSF CSR PI meeting, Duke University, Durham, USA, 2023.
6. “Social Equality-Aware Resource Allocation for Post-Disaster Communication Restoration,” IEEE ICCCN, Honolulu, Hawaii, USA, 2023.
7. “Secure and Efficient Dynamic Spectrum Access: From Technique to Societal Implication,” Department of Electrical and Computer Engineering, University of Nebraska, Lincoln, USA, 2021.
8. “Differentially Private Traffic Obfuscation on Connected Smart Homes,” University of Science and Technology of China, Hefei, China, 2019.
9. “A Cloud-based Secure and Privacy-Preserving Clustering Analysis of Infectious Disease,” IEEE PAC, Washington D.C., USA, 2018.
10. “Towards Secure and Privacy-Preserving Design in CPS: A Case Study on Connected Smart Homes,” Department of Electrical and Computer Engineering, Florida State University, USA, 2018.
11. “Communication through Symbol Silence: Towards Free Control Messages in Indoor WLANs,” IEEE ICDCS, Atlanta, USA, 2017.
12. “Policy-based Privacy-Preserving Scheme for Primary Users in Database-driven Cognitive Radio Networks,” IEEE GLOBECOM, Washington D.C., USA, 2016.

GRANTS AND CONTRACTS

Total Amount: \$3,635,976

My Share: \$1,836,000

1. **Title:** QuSeC-TAQS: Sensing-Intelligence on The Move: Quantum-Enhanced Optical Diagnosis of Crop Diseases
Total Award: \$1,075,000, My share: 35%
PI: Jianqing Liu, **co-PIs:** Lina Quesada, Lirong Xiang (NCSU), Zheshen Zhang (UMichigan), Quntao Zhang (USC), and Mo Li (UW-Seattle)
Sponsor: National Science Foundation
Duration: 09/01/2023-08/31/2027.
2. **Title:** Control and Analysis for Multiple-Access Quantum Computers
Total Award: \$5,000, My share: 100%
PI: Jianqing Liu
Sponsor: IBM
Duration: 05/01/2023-04/30/2024.
3. **Title:** ExpandQISE: Track 1: Virtual Quantum Networks: From Foundations to Field Tests
Total Award: \$800,000, My share: 70%
PI: Jianqing Liu, **co-PI:** Zheshen Zhang (UMichigan)
Sponsor: National Science Foundation
Duration: 10/01/2022-09/30/2025.
4. **Title:** Collaborative Research: CNS Core: Small: Privacy by Memory Design
Total Award: \$720,000 (including \$120,000 chip fabrication supplement), My share: 50%

Lead PI: Jianqing Liu, **Site PI:** Na Gong (USA)

Sponsor: National Science Foundation

Duration: 10/01/2022-01/31/2026.

5. **Title:** CAREER: Taming Wireless Devices Cross-Layer Errors with Assistive Networked Edges
Total Award: \$500,000, My share: 100%
PI: Jianqing Liu
Sponsor: National Science Foundation
Duration: 03/15/2021-02/28/2026.
6. **Title:** NCCoE Cybersecurity of Bio-genomic Data
Total Award: \$429,976, My share: 10%
PI: Thomas Morris (UAH), **co-PIs:** Jianqing Liu, Feng Zhu, and Jae Hong Park (UAH)
Sponsor: National Institute of Standards and Technology
Duration: 08/01/2021-07/31/2022.
7. **Title:** Secure Multi-party Computation Across Internet Clouds for Public Health
Total Award: \$10,000, My share: 100%
PI: Jianqing Liu
Sponsor: University of Alabama in Huntsville
Duration: 05/01/2021-04/30/2022.
8. **Title:** Remodel Cybersecurity Lab (equipment grant)
Total Award: \$95,000
Sponsor: COLSA Corporation
Duration: 01/01/2021 - 12/31/2021.
9. **Title:** Physical-layer Emulation for Cross-Technology Communications
Total Award: \$1,000, My share: 100%
Sponsor: University of Alabama in Huntsville
Duration: 01/01/2019-07/01/2019.

PROFESSIONAL SERVICES

Journal Editorship

Associate Editor, IEEE Transactions on Communications, 2024-now

Associate Editor, IEEE Transactions on Wireless Communications, 2024-now

Associate Editor, IEEE Transactions on Vehicular Technology, 2021-2024

Guest Editor, Special Issue: Recent Advances in Mobile Communication and Network Security, IEEE/CIC China Communications, 2021

Conference Service

- **Poster Chair:**

IEEE PIMRC'25.

- **Session Chair:**

IEEE INFOCOM'22'23; IEEE GLOBECOM'20; IEEE ICC'19'24; IEEE ICNC'19; IEEE IC3N'23.

- **Publication Chair:**

EAI MobiQuitous'19.

- **TPC Member:**

IEEE INFOCOM'22,'23,'24; IEEE ICC'18,'19,'20,'21,'22; IEEE ICC'17,'18,'21; IEEE GLOBE-COM'19,'20,'21,'22,'24; IEEE ICME'20.

Reviewers for Journal Submissions

IEEE Communications Surveys & Tutorials
IEEE/ACM Transactions on Networking
IEEE Journal of Selected Areas on Communications
IEEE Transactions on Dependable and Secure Computing
IEEE Transactions on Vehicular Technology
IEEE Transactions on Mobile Computing
IEEE Transactions on Big Data
IEEE Transactions on Industrial Informatics
IEEE Transactions on Green Communications and Networking
IEEE Wireless Communications Letters
IEEE Network Magazine
IEEE Wireless Communications
IEEE Communications Magazine
ACM Computing Surveys
Computer Networks
Journal of Communications and Information Networks
International Journal of Distributed Sensor Networks
Ad Hoc & Sensor Wireless Networks

Selected Reviewers for Conference Submissions

IEEE ICC'18,'19,'20,'21; IEEE GLOBECOM'18,'19,'20,'21; IEEE ICDCS'17; IEEE WCNC'14.

Others

| | |
|---|-----------|
| Panelist, National Science Foundation | 2019-2024 |
| Reviewer, German Research Foundation | 2025 |
| System Administrator, IEEE Transactions on Vehicular Technology | 2014-2017 |
| Reviewer, University of Florida Student Travel Grant | 2017-2018 |