JINGJING YAO

EDUCATION

New Jersey Institute of Technology (NJIT) Ph.D., Computer Engineering Advisor: Nirwan Ansari, Distinguished Professor, IEEE Fellow, NAI Fellow	Sep. 2016 - May 2021 Newark, U.S.
University of Science and Technology of China (USTC)	<i>Sep. 2013 - Jun. 2016</i>
MSc., Information and Communication Engineering	Hefei, China
Dalian University of Technology (DUT)	<i>Sep. 2009 - Jun. 2013</i>
BSc., Information and Communication Engineering	Dalian, China

RESEARCH INTEREST

Internet of Things (IoT), Internet of Drones (IoD)

Deep Reinforcement Learning in IoT/IoD

Federated learning in IoT/IoD

Mobile Edge Computing/Caching

Cybersecurity

Power Control and Energy Harvesting

RESEARCH EXPERIENCE

Intelligent and Secure Internet of Things

 \cdot Goal: to guide the Internet of Things (IoT) applications on how to balance the performance and security requirements by data-driven optimization and resource allocation with the help of machine learning techniques

Fast Autonomic Traffic Congestion Monitoring and Incident Detection through Advanced Networking, Edge Computing, and Video Analytics

- · Sponsor: National Science Foundation
- \cdot Goal: to incorporate wireless sensor networks, hierarchical edge-computing, and advanced computer vision technology to monitor traffic and detect incidents

SoarNet (free Space Optics as bAckhaul and energizeR for drone-assisted NETworking)

- $\cdot\,$ Sponsor: National Science Foundation
- · Goal: to simultaneously and rapidly transmit data and energy from an access node to a Dronemounted Base Station (DBS), which can be flexibly deployed to provision wireless broadband access

PUBLICATIONS

Published Journal Articles

 J. Yao and N. Ansari, "Secure Federated Learning by Power Control in Internet of Drones," in IEEE Transactions on Cognitive Communications and Networking, doi: 10.1109/TCCN.2021.30 76167, early access.

- [2] J. Yao and N. Ansari, "Wireless Power and Energy Harvesting Control in IoD by Deep Reinforcement Learning," in *IEEE Transactions on Green Communications and Networking*, doi: 10.1109/TGCN.2021.3049500, early access.
- [3] J. Yao and N. Ansari, "Enhancing Federated Learning in Fog-Aided IoT by CPU Frequency and Wireless Power Control," in *IEEE Internet of Things Journal*, vol. 8, no. 5, pp. 3438-3445, Mar. 2021.
- [4] J. Yao and N. Ansari, "Caching in Dynamic IoT Networks by Deep Reinforcement Learning," in IEEE Internet of Things Journal, vol. 8, no. 5, pp. 3268-3275, Mar. 2021.
- [5] J. Yao and N. Ansari, "Online Task Allocation and Flying Control in Fog-Aided Internet of Drones," in *IEEE Transactions on Vehicular Technology*, vol. 69, no. 5, pp. 5562-5569, May 2020.
- [6] J. Yao and N. Ansari, "Task Allocation in Fog-Aided Mobile IoT by Lyapunov Online Reinforcement Learning," in *IEEE Transactions on Green Communications and Networking*, vol. 4, no. 2, pp. 556-565, Jun. 2020.
- [7] J. Yao and N. Ansari, "Fog Resource Provisioning in Reliability-Aware IoT Networks," in *IEEE Internet of Things Journal*, vol. 6, no. 5, pp. 8262-8269, Oct. 2019.
- [8] J. Yao and N. Ansari, "QoS-Aware Power Control in Internet of Drones for Data Collection Service," in *IEEE Transactions on Vehicular Technology*, vol. 68, no. 7, pp. 6649-6656, Jul. 2019.
- [9] J. Yao, T. Han and N. Ansari, "On Mobile Edge Caching," in *IEEE Communications Surveys & Tutorials*, vol. 21, no. 3, pp. 2525-2553, third quarter 2019.
- [10] J. Yao and N. Ansari, "QoS-Aware Fog Resource Provisioning and Mobile Device Power Control in IoT Networks," in *IEEE Transactions on Network and Service Management*, vol. 16, no. 1, pp. 167-175, Mar. 2019.
- [11] J. Yao and N. Ansari, "Caching in Energy Harvesting Aided Internet of Things: A Game-Theoretic Approach," in *IEEE Internet of Things Journal*, vol. 6, no. 2, pp. 3194-3201, Apr. 2019.
- [12] J. Yao and N. Ansari, "Joint Content Placement and Storage Allocation in C-RANs for IoT Sensing Service," in *IEEE Internet of Things Journal*, vol. 6, no. 1, pp. 1060-1067, Feb. 2019.
- [13] J. Yao and N. Ansari, "QoS-aware Joint BBU-RRH Mapping and User Association in Cloud-RANs," in *IEEE Transactions on Green Communications and Networking*, vol. 2, no. 4, pp. 881-889, Dec. 2018.
- [14] J. Yao, P. Lu, L. Gong and Z. Zhu, "On Fast and Coordinated Data Backup in Geo-Distributed Optical Inter-Datacenter Networks," in *Journal of Lightwave Technology*, vol. 33, no. 14, pp. 3005-3015, Jul. 2015.
- [15] P. Lu, L. Zhang, X. Liu, J. Yao and Z. Zhu, "Highly efficient data migration and backup for big data applications in elastic optical inter-data-center networks," in *IEEE Network*, vol. 29, no. 5, pp. 36-42, 2015.

Published Conference Proceedings

- [1] J. Yao and N. Ansari, "Power Control in Internet of Drones by Deep Reinforcement Learning," in *IEEE International Conference on Communications (ICC)*, Dublin, Ireland, 2020, pp. 1-6.
- [2] J. Yao and N. Ansari, "Joint Drone Association and Content Placement in Cache-Enabled Internet of Drones," in *IEEE Global Communications Conference (GLOBECOM)*, Waikoloa, HI, USA,

2019, pp. 1-6. (This work won the Student Travel Grant for Globecom 2019)

- [3] J. Yao and N. Ansari, "Energy-Aware Task Allocation for Mobile IoT by Online Reinforcement Learning," in *IEEE International Conference on Communications (ICC)*, Shanghai, China, 2019, pp. 1-6.
- [4] J. Yao and N. Ansari, "QoS-Aware Rechargeable UAV Trajectory Optimization for Sensing Service," in *IEEE International Conference on Communications (ICC)*, Shanghai, China, 2019, pp. 1-6.
- [5] J. Yao and N. Ansari, "Reliability-aware Fog Resource Provisioning for Deadline-driven IoT Services," in *IEEE Global Communications Conference (GLOBECOM)*, Abu Dhabi, United Arab Emirates, 2018, pp. 1-6.
- [6] J. Yao and N. Ansari, "Joint Caching in Fronthaul and Backhaul Constrained C-RAN," in IEEE Global Communications Conference (GLOBECOM), Singapore, 2017, pp. 1-6.
- [7] J. Yao, P. Lu and Z. Zhu, "Minimizing disaster backup window for geo-distributed multi-datacenter cloud systems," in *IEEE International Conference on Communications (ICC)*, Sydney, 2014, pp. 3631-3635. (This work won the Student Travel Grant for ICC 2014)

HONORS AND AWARDS

Hashimoto Prize (outstanding doctoral candidate)		2021
Student Travel Grant for Globecom 2019		2019
Provosts Doctoral Assistantship (NJIT fellowship)	Sep. 2016 - Aug.	2018
Graduate Student Award, National Award	Sep.	2015
Student Travel Grant for ICC 2014		2014
2012 Interdisciplinary Contest in Modeling (ICM), 2nd Price		2012
2011-2012 Learning Excellence Award of DUT, 1st Price	Oct.	2012
2010-2011 Learning Excellence Award of DUT, 1st Price	Oct.	2011
2009-2010 Learning Excellence Award of DUT, 1st Price	Oct.	2010

PROFESSIONAL ACTIVITIES

Selected Journal & Conference Reviewer

· Journal Reviewer:

- 1. IEEE/ACM Transactions on Networking
- 2. IEEE Communications Surveys & Tutorials
- 3. IEEE Transactions on Communications
- 4. IEEE Journal on Selected Areas in Communications
- 5. IEEE Transactions on Mobile Computing
- 6. IEEE Transactions on Cloud Computing
- 7. IEEE Transactions on Vehicular Technology
- 8. IEEE Transactions on Network and Service Management
- 9. IEEE Transactions on Cognitive Communications and Networking

- 10. IEEE Transactions on Parallel and Distributed Systems
- 11. IEEE Internet of Things Journal
- 12. IEEE Communications Letters
- 13. IEEE Communications Magazine
- 14. IEEE Wireless Communications
- 15. IEEE Wireless Communications Letters
- 16. IEEE Networking Letters
- 17. IEEE Access
- 18. ACM Transactions on Sensor Networks
- 19. Transactions on Emerging Telecommunications Technologies
- 20. Telecommunication Systems
- 21. IET Communications

· Conference Reviewer:

- 1. IEEE Global Communications Conference (GLOBECOM)
- 2. IEEE International Conference on Communications (ICC)
- 3. International Conference on Computing Networking and Communications (ICNC)
- 4. IEEE Symposium on Computers and Communications (ISCC)

TPC Member

· International Conference on Wireless Communications and Signal Processing (WCSP 2019)