Publication List

Dr. Yuanjian Li
Now: *Assistant Professor* at Xi'an Jiaotong-Liverpool University (XJTLU), Suzhou, China
2023-2025: *Research Fellow* at Nanyang Technological University (NTU), Singapore
2019-2022: *PhD* in Telecommunications from King's College London (KCL), UK

Published Journals

(*The superscript * indicates the corresponding author*)

14. **Yuanjian Li***, A. S. Madhukumar, Tan Zheng Hui Ernest, Gan Zheng, Walid Saad, and A. Hamid Aghvami, "Energy-Efficient UAV-Driven Multi-Access Edge Computing: A Distributed Many-Agent Perspective," *IEEE Transactions on Communications (TCOM)*, 2025. DOI: 10.1109/TCOMM.2025.3552746. *To Appear*

    Keywords: Multi-access edge computing, unmanned aerial vehicle, multi-agent deep reinforcement learning, energy efficiency maximization, path planning

13. **Yuanjian Li***, and A. S. Madhukumar, "Hybrid Near- and Far-Field THz UM-MIMO Channel Estimation: A Sparsifying Matrix Learning-Aided Bayesian Approach," *IEEE Transactions on Wireless Communications (TWC)*, vol. 24, no. 3, pp. 1881–1897, 2025. DOI: 10.1109/TWC.2024.3514141.

    Keywords: Channel estimation, THz, ultra-massive MIMO, hybrid near- and far-field radiation, sparse Bayesian learning, adaptive dictionary learning

12. **Yuanjian Li***, and A. Hamid Aghvami, "Radio Resource Management for Cellular-Connected UAV: A Learning Approach," *IEEE Transactions on Communications (TCOM)*, vol. 71, no. 5, pp. 2784–2800, 2023. DOI: 10.1109/TCOMM.2023.3262826.

    Keywords: Deep reinforcement learning, drones, resource allocation, beamforming design

11. **Yuanjian Li***, A. Hamid Aghvami, and Daoyi Dong, "Path Planning for Cellular-Connected UAV: A DRL Solution with Quantum-Inspired Experience Replay," *IEEE Transactions on Wireless Communications (TWC)*, vol. 21, no. 10, pp. 7897–7912, 2022. DOI: 10.1109/TWC.2022.3162749.

    Keywords: Deep reinforcement learning, drones, trajectory design, quantum-inspired experience replay, performance optimization

10. **Yuanjian Li***, A. Hamid Aghvami, and Daoyi Dong, "Intelligent Trajectory Planning in UAV-mounted Wireless Networks: A Quantum-Inspired Reinforcement Learning Perspective," *IEEE Wireless Communications Letters (WCL)*, vol. 10, no. 9, pp. 1994–1998, 2021. DOI: 10.1109/LWC.2021.3089876.

    Keywords: Reinforcement learning, quantum mechanics, drones, trajectory planning, quantum-inspired action selection policy

9. **Yuanjian Li**, Rui Zhao*, YanSha Deng, Feng Shu, Zhiqiao Nie, and A. Hamid Aghvami, "Harvest-and-Opportunistically-Relay: Analyses on Transmission Outage and Covertness," *IEEE Transactions on Wireless Communications (TWC)*, vol. 19, no. 12, pp. 7779–7795, 2020. DOI: 10.1109/TWC.2020.3015816.

    Keywords: Covert communications, transmission outage, performance analysis, wireless relaying networks, discrete energy harvesting, Markov chain

8. **Yuanjian Li**, Rui Zhao*, Yi Wang, Gaofeng Pan, and Chunguo Li, "Artificial Noise Aided Precoding with Imperfect CSI in Full-Duplex Relaying Secure Communications," *IEEE Access*, vol. 6, pp. 44107–44119, Aug. 2018.

Keywords: Maximum ratio combining, cooperative relay, decode and forward, artificial noise, imperfect CSI, asymptotic performance analysis

7. **Yuanjian Li**, Rui Zhao*, Lisheng Fan, and An Liu, "Antenna Mode Switching for Full-Duplex Destination-Based Jamming Secure Transmission," *IEEE Access*, vol. 6, pp. 9442–9453, Jan. 2018.

   Keywords: Physical layer security, antenna mode switching, convex optimization, KKT conditions, destination-based jamming, optimal power allocation

6. Hongxin Lin, **Yuanjian Li***, Guanghui Chen, Zening Liu, and Yongming Huang*, "Performance Analysis for MmWave Cell-Free Access Network Based on Terahertz Backhaul," *IEEE Communications Letters (CL)*, vol. 29, no. 6, pp. 1181–1185, 2025. DOI: 10.1109/LCOMM.2025.3555748.

   Keywords: Terahertz backhaul, millimeter wave cell-free network, fluctuating two-ray fading, adaptive decoding transmission, performance analysis

5. Ke Yang, Siling Feng, Rongen Dong, Xuehui Wang, Yan Wang, Jiatong Bai, **Yuanjian Li**, and Jiangzhou Wang, "IRS-User Matching and Beamforming Design for Multi-Active-IRS-and-UAV-Aided Secure Directional Modulation Networks," *Elsevier Chinese Journal of Aeronautics (CJA)*, 2024. DOI: 10.1016/J.CJA.2025.103422. *To Appear*

   Keywords: Directional modulation, active intelligent reflecting surface, secrecy sum-rate, intelligent reflecting surface, unmanned aerial vehicle

4. Daliang Ouyang, Rui Zhao, **Yuanjian Li**, Rongxin Guo, and Yi Wang, "Antenna Selection in Energy Harvesting Relaying Networks Using Q-Learning Algorithms," *China Communications*, vol. 18, pp. 64–75, Apr. 2021. Publisher: China Communications.

   Keywords: Q-learning, optimal power split factor, outage probability, ergodic capacity, antenna selection

3. Rui Zhao, Xing Tan, **Yuanjian Li**, Yucheng He, Chunguo Li, and Zhiqiao Nie, "Asymptotic Performance Analysis of Untrusted Relay System with Full-Duplex Jamming Destination," *Journal on Communications*, vol. 39, pp. 20–30, Sep. 2018. Publisher: Journal on Communications.

   Keywords: Physical layer security, full-duplex destination jamming, optimal antenna selection, ergodic secrecy rate, secrecy outage probability

2. Daliang Ouyang, Rui Zhao, **Yuanjian Li**, "Analysis and Optimization of Wireless Powered Untrusted Relay System with Multiple Destinations," *Physical Communication*, vol. 42, p. 101161, Jul. 2020. Publisher: Elsevier.

   Keywords: Physical layer security, antenna mode switching, destination selection, ergodic secrecy rate, non-linear energy harvesting

1. Daliang Ouyang, Rui Zhao, Yi Wang, **Yuanjian Li**, and Yulin Yang, "Analysis of Ergodic Security Performance in Multi-User Diversity and Energy-Constrained Untrusted Relay Systems," *Journal of Signal Processing*, vol. 35, Feb. 2019. Publisher: Journal of Signal Processing.

   Keywords: Physical layer security, energy harvesting, ergodic secrecy rate, opportunistic scheduling, untrusted relay

Published Conferences

10. Duanrui Liao, Jinsong Hu, **Yuanjian Li**, Shihao Yan, Youjia Chen, and Jun Wang, "Beam Squint Assisted Near-Field Covert Communication," Accepted by *IEEE/CIC International Conference on Communications in China (ICCC)*, Shanghai, China, Aug. 2025.

    Keywords: Covert communication, near-field, beam squint, location estimation, true-time-delay lines, finite blocklength

9. **Yuanjian Li**, A. S. Madhukumar, Tan Zheng Hui Ernest, Gan Zheng, Walid Saad, and A. Hamid Aghvami, "Energy-Efficient UAV-Aided Computation Offloading on THz Band: A MADRL Solution," *IEEE Global Communications Conference (GLOBECOM)*, Cape Town, South Africa, Dec. 2024.

    Keywords: Multi-agent deep reinforcement learning, drones, energy efficiency, THz, edge computing, multi-dimension optimization

8. **Yuanjian Li**, Mathini Sellathurai, Zheng Chu, Pei Xiao, and A. Hamid Aghvami, "DRL-Aided Joint Resource Block and Beamforming Management for Cellular-Connected UAVs," *IEEE Global Communications Conference (GLOBECOM)*, Kuala Lumpur, Malaysia, Dec. 2023.

   Keywords: UAV, deep reinforcement learning, beamforming, cellular networks

7. **Yuanjian Li**, Mathini Sellathurai, and A. Hamid Aghvami, "Secrecy Performance Analysis on UAV Down-Link Broadcasting with a Full Duplex Receiver," *IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC)*, Toronto, Canada, Sep. 2023.

   Keywords: Physical layer security, UAV, full duplex, secrecy performance analysis, Monte Carlo simulation

6. **Yuanjian Li** and A. Hamid Aghvami, "Covertness-Aware Trajectory Design for UAV: A Multi-Step TD3-PER Solution," *IEEE International Conference on Communications (ICC)*, Seoul, South Korea, May 2022. DOI: 10.1109/ICC45855.2022.9839093.

   Keywords: Covert communications, deep reinforcement learning, UAV, trajectory optimization, Gaussian-noised location

5. **Yuanjian Li** and A. Hamid Aghvami, "Intelligent UAV Navigation: A DRL-QiER Solution," *IEEE International Conference on Communications (ICC)*, Seoul, South Korea, May 2022. DOI: 10.1109/ICC45855.2022.9838566.

   Keywords: Deep reinforcement learning, drones, trajectory design, quantum-inspired experience replay, performance optimization

4. **Yuanjian Li**, Rui Zhao, Xing Tan, and Zhiqiao Nie, "Secrecy Performance Analysis of Artificial Noise Aided Precoding in Full-Duplex Relay Systems," *IEEE Global Communications Conference (GLOBECOM)*, Singapore, Dec. 2017. DOI: 10.1109/GLOCOM.2017.8254504.

   Keywords: Full-duplex relay, Rayleigh fading channel, artificial noise aided precoding, Gaussian-Laguerre approximation, beamforming

3. Xing Tan, Rui Zhao, and **Yuanjian Li**, "Large-Scale Antennas Analysis of Untrusted Relay System with Cooperative Jamming," *IEEE International Conference on Network and Service Management (CNSM)*, Tokyo, Japan, Nov. 2017. DOI: 10.23919/CNSM.2017.8256012.

   Keywords: Destination-based jamming, full-duplex, antenna selection, ergodic achievable secrecy rate, power allocation

2. Zhiqiao Nie, Rui Zhao, **Yuanjian Li**, and Xing Tan, "A Full-Duplex SWIPT Relaying Protocol Based on Discrete Energy State," *IEEE International Symposium on Wireless Personal Multimedia Communications (WPMC)*, Bali, Indonesia, Dec. 2017. DOI: 10.1109/WPMC.2017.8301864.

   Keywords: Full-duplex, energy harvesting, Markov chain, outage probability

1. Daliang Ouyang, Rui Zhao, **Yuanjian Li**, and Xing Tan, "Wireless Energy Harvesting Relaying Networks Combined with Antenna Selection," *IEEE International Symposium on Wireless Personal Multimedia Communications (WPMC)*, Lisbon, Portugal, Dec. 2019. DOI: 10.1109/WPMC48795.2019.9096212.

   Keywords: Antenna selection, energy harvesting, opportunistic scheduling, outage probability