李元健，博士

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$$\frac{1}{\sqrt{2}}\left|\text{无线通信}\right\rangle+\frac{1}{2}\left|\text{机器学习}\right\rangle+\frac{1}{2}\left|\text{量子计算}\right\rangle$$

简介： 伦敦国王学院应届博士，师从 Hamid Aghvami 教授 (英国皇家工程院院士、*IEEE* 院士、*IET* 院士) 与 Osvaldo Simeone 教授 (*IEEE* 院士、*IET* 院士)。大学英语**六级**考试 576 分，**雅思**学术类总分 7.0 分。**省优秀硕士毕业论文**和**硕士研究生国家奖学金**获得者。

博士期间研究方向： 包括但不限于：**6G 网络、深度强化学习、量子机器学习、Federated/Meta/Transfer Learning、无人机通信、轨迹优化、蜂窝网络、无线资源分配、无线传输性能分析、隐蔽通信、物理层安全、MIMO**。

数据科学与机器学习相关经验： **Kaggle Contributor**。基于 Python 的资深 Kaggle 平台“玩家”，有丰富的 Pandas（数据分析/处理/清洗/提炼）、Seanborn（数据可视化，类似工具还有 Matplotlib、Bokeh 和 Plotly）、Numpy（向量化数学操作）、Tensorflow/Pytorch（机器学习框架搭建）、Scipy（数据分布转换/信号处理）和 Sklearn（机器学习模型和数据预处理相关）上手操作经验，如，房价走势预测、自然语言处理、语义预测、时间序列预测、股市变化预测、医疗图像检测等。

编程语言

Python (五年经验用于科研), **Matlab** (八年经验用于科研), LaTeX, C/C++ and VHDL

教育背景

2019.10–2022.12 **博士**，电信学 (Telecommunications)，伦敦国王学院 *(King's College London); QS 2022* 世界排名 *: 35*
2016.09–2019.07 **硕士**，信息与通信工程专业，华侨大学，厦门。导师 *:* 赵睿副教授
2011.09–2015.06 **本科**，通信工程专业，南京工业大学，南京

研究助理

2023.01–2023.03 **研究助理**，物联智能电网中的机器学习，华威大学 *(University of Warwick); QS 2022* 世界排名 *: 61*

教学助理

1. 7CCEMDCO Digital Communications (22-23 SEM1 000001)：伦敦国王学院 22-23 学年第一学期数字通信课程教学助理
2. 5CCE2MCT Mechatronics (21-22 SEM2 000001)：伦敦国王学院 21-22 学年第二学期机电一体化课程教学助理
3. 7CCSMMPC Mobile and Personal Communications (20-21 SEM2 000001)：伦敦国王学院 20-21 学年第二学期移动及个人通信课程教学助理

重要奖项及荣誉节选

2020.05 省级研究生优秀毕业论文 , 福建省
2019.06 国家公派联合全奖博士生 , 中华人民共和国国家留学基金管理委员会与伦敦国王学院联合审批与资助
2019.06 校级优秀硕士毕业生 , 华侨大学
2019.06 校级三好学生 , 华侨大学
2018.12 硕士研究生一等奖学金 , 华侨大学
2018.11 研究生国家奖学金 , 中华人民共和国教育部

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1. 一种能量受限非可信中继网络的安全速率最优方法 , 发明专利号：*ZL201910456910.3*, 申请日：2019-10-08, 授权日：2022-08-30
2. 基于机会式无线能量采集非可信中继网络安全传输方法 , 发明专利号：*ZL201910456465.0*, 申请日：2019-10-08, 授权日：2022-07-01
3. 一种无线能量采集全双工主动窃听方法 , 发明专利号：*ZL201811249636.4*, 申请日：2019-04-19, 授权日：2022-05-03
4. 一种单向全双工 MIMO 中继天线选择安全传输方法 , 发明专利号：*ZL201810700060.2*, 申请日：2019-01-11, 授权日：2021-03-23
5. 一种双向全双工 MIMO 中继天线选择安全传输方法 , 发明专利号：*ZL201810700066.X*, 申请日：2018-12-21, 授权日：2021-02-02
6. 一种全双工中继系统的人工噪声预编码安全传输方法 , 发明专利号：*ZL201710307921.6*, 申请日：2017-08-22, 授权日：2020-11-03

7. 基于最优天线选择的全双工多天线目的节点干扰传输方法 , **发明专利号：** *ZL201710273932.7*, 申请日：2017-09-29, 授权日：2020-06-26
8. 一种基于能量状态的全双工中继传输方法 , **发明专利号：** *ZL201710463555.3*, 申请日：2018-04-13, 授权日：2019-12-13
9. 一种全双工机会式中继的协议自适应切换安全传输方法 , **发明专利号：** *ZL201710016694.1*, 申请日：2017-06-23, 授权日：2019-10-18

国际期刊审稿人及国际会议主持

- 中科院一区国际期刊：IEEE Journal on Selected Aera in Communications (JSAC)、IEEE Transactions on Wireless Communications (TWC)、IEEE Transactions on Neural Networks and Learning Systems (TNLS)、IEEE Wireless Communications Magazine (WCM)、IEEE Internet of Things Journal (IoTJ)、IEEE Internet of Things Magazine (IoTMag) 等
- 其他国际期刊：IEEE Transactions on Communications (TC)、IEEE Transactions on Vehicular Technology (TVT)、IEEE Wireless Communications Letters (WCL)、Elsevier Digital Communications and Networks (DCN)、SAGE International Journal of Distributed Sensor Networks (IJDSN) 等
- 无线通信旗舰会议：IEEE Global Communications Conference (GLOBECOM)、IEEE International Conference on Communications (ICC)
- 其他无线通信会议：IEEE Vehicular Technology Conference (VTC)、IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC) 等
- 通信顶会**主持**：Session chair for IEEE ICC'22-SAC-05 Machine Learning for Communications Track-Networks

论文成果

已发表期刊：

1. **Yuanjian Li** and A. Hamid Aghvami, "Radio Resource Management for Cellular-Connected UAV : A Learning Approach," *IEEE Transactions on Communications (***TCom***)*. 已被接收， 预印版 : `https://arxiv.org/pdf/2102.13222.pdf`, 2023. (**中科院二区 , 无线通信行业顶刊 , 影响因子 : 6.61**)
   Deep Reinforcement learning | drones | resource allocation | beamforming design
2. **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, pp.7897-7912, 2022. DOI : `10.1109/TWC.2022.3162749` (**中科院一区 , 无线通信行业顶刊 , 影响因子 : 8.346**)
   Deep Reinforcement learning | drones | trajectory design | quantum-inspired experience replay | performance optimization
3. **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, pp.1994–1998, 2021. DOI : `10.1109/LWC.2021.3089876` (**中科院二区 , 影响因子 : 5.281**)
   Reinforcement learning | Quantum theory | drones | trajectory planning | quantum-inspired action selection policy
4. **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, pp.7779–7795, 2020. DOI :`10.1109/TWC.2020.3015816` (**中科院一区 , 无线通信行业顶刊 , 影响因子 : 8.346**)
   Covert communications | transmission outage | performance analysis | wireless relaying networks | discrete energy harvesting | Markov chain
5. **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. (**影响因子 : 3.476**)
   Maximum ratio combining | cooperative relay | decode and forward | artificial noise | imperfect CSI | asymptotic performance analysis
6. **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. (**影响因子 : 3.476**)
   Physical layer security | antenna mode switching | convex optimization | KKT conditions | destination-based jamming | optimal power allocation
7. **李元健** , 赵睿 , 谭星 , 等 . " 全双工目的端加扰安全传输系统中的天线模式切换[J]," *信号处理* , 2018, 34(4) : 457-464.
   物理层安全 | 人工噪声 | 全双工 | 天线模式切换 | 凸优化 | 最优功率分配
8. 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. (**影响因子 : 3.170**)
   Q-learning | optimal power split factor | outage probability | ergodic capacity | antenna selection
9. Daliang Ouyang, Rui Zhao, **Yuanjian Li**, "Analysis and Optimization of Wireless Powered Untrusted Relay System with Multiple Destinations," *Physical Communication*, vol.42, pp.101161, Jul., 2020. (**影响因子 : 2.379**)
   Physical layer security | antenna mode switching | destination selection | ergodic secrecy rate | non-linear energy harvesting

已发表会议：

1. **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*, May, 2022. DOI : `10.1109/ICC45855.2022.9839093` (**无线通信行业顶会**)
   Covert communications | Deep reinforcement learning | UAV | trajectory optimization | Gaussian-noised location

2. **Yuanjian Li** and A. Hamid Aghvami, “ Intelligent UAV Navigation : A DRL-QiER Solution,” *IEEE International Conference on Communications (**ICC**), Seoul*, May, 2022. DOI : 10.1109/ICC45855.2022.9838566 (**无线通信行业顶会**)
Deep Reinforcement learning | drones | trajectory design | quantum-inspired experience replay | performance optimization

3. **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 (**无线通信行业顶会**)
Full-duplex relay | Rayleigh fading channel | artificial noise aided precoding | Gaussian-Laguerre approximation | beamforming

4. Xing Tan, Rui Zhao, and **Yuanjian Li**, “Large-Scale Antennas Analysis of Untrusted Relay System with Cooperative Jamming,” *IEEE CNSM 2017, Japan*, Nov., 2017. DOI : 10.23919/CNSM.2017.8256012
Destination-based jamming | full-duplex | antenna selection | ergodic achievable secrecy rate | power allocation

5. Zhiqiao Nie, Rui Zhao, **Yuanjian Li**, and Xing Tan, “ A Full-Duplex SWIPT Relaying Protocol Based on Discrete Energy State,” *IEEE WPMC 2017, Indonesia*, Dec., 2017. DOI : 10.1109/WPMC.2017.8301864
Full-duplex | energy harvesting | Markov chain | outage probability

6. Daliang Ouyang, Rui Zhao, **Yuanjian Li**, and Xing Tan, “ Wireless Energy Harvesting Relaying Networks Combined with Antenna Selection,” *IEEE WPMC 2019, Portugal*, Dec., 2019. DOI : 10.1109/WPMC48795.2019.9096212
Antenna selection | energy harvesting | opportunistic scheduling | outage probability

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