RUIQI WANG

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Research Interests: Wireless Networks; IoT Systems; Reinforcement Learning; Embedded AI

EDUCATION

University of Electronic Science and Technology of China (Advisor: Prof. Shizhong Xu) Sep 2024 - Jul 2027
School of Information and Communication Engineering | Master of Information and Communication Engineering
GPA: 4.00/4.00 | Average Score: 89.80/100 | Rank: 17/322 (**Top 6%**)
Key courses: Optimization Methods and Application (96), Applied Stochastic Processes (89.5), Wireless Networking (94.1), Communication Networks (86.9)

University of Electronic Science and Technology of China Sep 2020 - Jul 2024
Glasgow College | Bachelor of Electronic and Information Engineering (**First-Class Honours**)
GPA: 3.85/4.00 | Average Score: 87.38/100 | Rank: 25/246 (**Top 11%**)
Key courses: Probability Theory and Mathematical Statistics (95), Signal and Systems (97), Embedded Processor (99), Power Electronics (95), Fundamentals of Analog Circuits (88), Application and Design of Digital Logic (88)

PUBLICATIONS & MANUSCRIPTS

R. Wang, T. Song, J. Ren, X. Wang, S. Xu and S. Wang, "D-LoRa: a Distributed Parameter Adaptation Scheme for LoRa Network," GLOBECOM 2025 - 2025 IEEE Global Communications Conference, Taipei, Taiwan, 2025, pp. 5241-5247, doi: 10.1109/GLOBECOM59602.2025.11431835. [pdf][code]

R. Wang et al., "Efficient Resource Allocation Framework for LoRaWAN Network via Online Learning," in IEEE Internet of Things Journal, doi: 10.1109/JIOT.2026.3676777. [pdf][code]

R. Wang, E. M. Ghoura, O. A. M. Alhussein, et al., "Two-Layer Reinforcement Learning-Assisted Joint Beamforming and Trajectory Optimization for Multi-UAV Downlink Communications", submitted to *IEEE Transactions on Wireless Communications*, 2026. [pdf][code]

RESEARCH PROJECTS

Joint Beamforming and Trajectory Optimization for Multi-UAV Communications Aug 2025 – Present
Master Research Project, Khalifa University Advisor: Prof. Sami Muhaidat

- Developed a two-timescale learning framework that decouples instantaneous beamforming from long-horizon UAV trajectory planning in dynamic multi-UAV downlink networks.
- Designed a topology-aware GNN beamformer and a CTDE-based MAPPO planner to model UAV-user association, intra-cluster interference, safety constraints, and mission completion.
- Achieved low-latency beamforming inference within 30–45 ms, about 2000× faster than genetic algorithm, with stronger sum-rate and generalization performance than DeepSets, MS-PointNet, IPPO, QMIX, and VDN.

  Selected Outputs: Manuscript submitted to IEEE Transactions on Wireless Communications; code repository; GNN-MAPPO simulation framework.

Online Learning-Based Resource Allocation for LoRaWAN Networks Oct 2023 – Sep 2025
Master Research Project, UESTC Advisor: Dr. Jing Ren

- Formulated joint transmission parameter allocation as a combinatorial multi-armed bandit problem to balance packet delivery ratio and energy efficiency in large-scale LoRaWAN networks.
- Proposed D-LoRa and CD-LoRa, combining distributed online learning with RSSI-assisted channel assignment and action-space pruning to reduce exploration overhead.
- Built a Raspberry Pi/STM32 LoRaWAN testbed; field experiments improved PDR by 10.8% and energy efficiency by 26.1% over state-of-the-art baselines.

Selected Outputs: IEEE Internet of Things Journal article; IEEE GLOBECOM 2025 paper; code repository; Raspberry Pi/STM32 LoRaWAN testbed.

Robot Path Planning Based on Visual SLAM May 2023 – Jun 2024
Undergraduate Final-Year Project, UESTC Advisor: Prof. Jie Lin

- Extended ORB-SLAM3 with dense RGB-D mapping and converted point clouds into OctoMap and 2D occupancy grids for navigation.
- Implemented Q-learning, SARSA, and DQN-based path planners; evaluated the system on TUM RGB-D and self-recorded datasets.

Selected Outputs: Undergraduate thesis recognized as "Outstanding Thesis" by Glasgow College; code repository; Visual SLAM/RL path-planning prototype.

ACADEMIC EXPERIENCE

Research Assistant, School of Computing, City University of Hong Kong May 2026 – Present
Conducting research on AI-driven wireless sensing.

Reviewer, IEEE VTC2026-Spring Mar 2026
Served as a technical reviewer for the IEEE Vehicular Technology Conference 2026-Spring.

Exchange Student, Khalifa University Aug 2025 – Dec 2025
Conducted research on UAV-assisted wireless communications.

Teaching Assistant, Glasgow College, UESTC Fall 2023, Fall 2024
Assisted with coursework, lab tutorials, and student Q&A for the undergraduate Signals and Systems course.

SCIENTIFIC COMPETITION

IEEEXtreme 18.0 Programming Competition Chengdu, China
Top 7% Participants (Global Rank: 358/5801) Nov 2024
Collaborated to solve advanced algorithmic challenges in a 24-hour hackathon format, ranking in the top 7% globally.

National University Embedded Chip and System Design Competition Nanjing, China
National Third Prize (Team Leader) Aug 2022
Developed an autonomous rescue UAV integrating YOLO-Fastest on STM32 for human detection and Raspberry Pi/Pixhawk for flight control, won the National Third Prize.

AWARDS AND HONORS

First Class Honours Degree at the University of Glasgow 2024
Outstanding Bachelor Graduate of UESTC 2024
Outstanding Postgraduate Student Scholarship (First Class ×2) 2024-2025
Outstanding Undergraduate Student Scholarship (First Class ×1; Second Class ×2) 2020-2023
National Encouragement Scholarship (×2) 2020-2022

SKILLS

Programming: Python / MATLAB / C++ / C
Hardware & Embedded Systems: STM32 / Raspberry Pi / Arduino / LoRaWAN / TurtleBot
Tools: Git / LaTeX / VS Code / Keil Studio / ROS / SolidWorks
Languages: Chinese (Native), English (IELTS 7.0: L 8.0, R 7.5, W 6.0, S 6.0)