

RUI WANG

Email: ruiwang18@fudan.edu.cn

EDUCATION

Ph.D. in Electrical Engineering

9/2018 - 6/2024

Fudan University, Shanghai, China

Advisor: Yi Jiang

Research: *Machine Learning + Communication Systems and Theory*

B.E. in Communication Engineering

9/2014 - 6/2018

Northeastern University, Shenyang, China

GPA: 3.7/4.00, top 8% out of 96 students

PEER-REVIEWED PAPERS

AI for Science:

- [1] L. Wei*, P. Hu*, R. Feng*, Y. Du, T. Zhang, **R. Wang**, Y. Wang, Z. Ma and T. Wu. “Generative PDE Control.” [ICLR 2024 Workshop](#) on AI4DifferentialEquations In Science. [Oral](#). [\[paper\]](#)
- [2] L. Wei*, P. Hu*, R. Feng*, Y. Du, T. Zhang, **R. Wang**, Y. Wang, Z. Ma and T. Wu. “A Generative Approach to Control Complex Physical Systems.” Accepted at [NeurIPS 2024](#).
- [3] [P. Hu*](#), X. Zheng*, W. Deng, **R. Wang**, et al. “A Probabilistic Generative Method for Safe Physical System Control Problems.” Accepted at [NeurIPS 2024 Workshop](#).

Theoretical and AI-Driven Innovations in Wireless Communication:

- [4] W. Dai, **R. Wang**, J. Liu, and Y. Jiang. “Quasi-NN based Design for Downlink Cell-Free Massive MIMO.” IEEE Transactions on Communications ([TCOM](#)), 2024. Accepted.
- [5] **R. Wang**, W. Dai and Y. Jiang. “Distributed Learning for Uplink Cell-Free Massive MIMO Networks.” IEEE Transactions on Communications ([TCOM](#)), 2023. [\[paper\]](#)
- [6] W. Dai, J. Liu, **R. Wang**, and Y. Jiang. “Learning by Over-the-Air Training: A Distributed Precoding for Cell-Free Massive MIMO.” IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC), 2023. [\[paper\]](#)
- [7] **R. Wang**, Y. Jiang and W. Zhang. “Distributed Learning for MIMO Relay Networks.” IEEE Journal of Selected Topics in Signal Processing ([JSTSP](#)), 2022. [\[paper\]](#)
- [8] **R. Wang** and Y. Jiang. “Distributed Optimization of Uplink Cell-Free Massive MIMO Networks.” IEEE Vehicular Technology Conference (VTC), 2022. [\[paper\]](#)
- [9] Z. Yang, **R. Wang**, Y. Jiang and J. Li, “Joint Estimation of Velocity, Angle-of-Arrival and Range (JEVAR) Using a Conjugate Pair of Zadoff-Chu Sequences.” IEEE Transactions on Signal Processing ([TSP](#)), 2021. [\[paper\]](#)
- [10] **R. Wang**, Y. Jiang and W. Zhang, “A Distributed MIMO Relay Scheme Inspired by Backpropagation Algorithm.” IEEE Global Communications Conference ([GLOBECOM](#)), 2021. [\[paper\]](#)
- [11] Z. Yang, **R. Wang** and Y. Jiang, “A Novel Scheme for Joint Estimation of Velocity, Angle-of-arrival and Range in Multipath Environment.” IEEE Global Communications Conference ([GLOBECOM](#)), 2021. [\[paper\]](#)
- [12] **R. Wang** and Y. Jiang, “Distributed Optimization of Multiuser MIMO Relay Network Using Backpropagation Algorithm.” Asilomar Conference on Signals, Systems, and Computers (ACSSC), 2021. [\[paper\]](#)
- [13] **R. Wang** and Y. Jiang, “A Nonlinear Relay Scheme Resilient to Interference with Unknown CSI.” Asilomar

- Conference on Signals, Systems, and Computers (ACSSC), 2020. [\[paper\]](#)
- [14] **R. Wang** and Y. Jiang, “*An Interference-Resilient Relay Beamforming Scheme Inspired by Back-Propagation Algorithm.*” Information: Theory and Applications (ITA) Workshop, 2020. [\[paper\]](#)
- [15] Z. Zhang, J. Liu, **R. Wang** and T. Li. “*Study on Medical Image Segmentation Methods of Humerus.*” Chinese Control and Decision Conference (CCDC), 2017. [\[paper\]](#)

PATENTS

- [1] Y. Jiang, Z. Yang and **R. Wang**. “Joint Estimation of Velocity, Angle-of-Arrival and Range (JEVAR) Using a Conjugate Pair of Zadoff-Chu Sequence.” Apr. 12 2022. [CN Patent](#) 113,156,365.
- [2] Y. Jiang, J. Yang, Q. Du, **R. Wang**, W. Zhang and F. Li. “Sensitivity of Bluetooth Receiver by Introducing Interleaver.” Sept. 27 2022. [US Patent](#) 11,456,818. & Mar. 18 2022. [CN Patent](#) 112,653,537.

EXPERIENCES

- | | |
|--|--------------------------------------|
| Institute for Interdisciplinary Information Sciences (IIIS) | 8/2024 - Present |
| Visiting Scholar (advisor: Longbo Huang) | Tsinghua University, Beijing, China |
| • Efficient learning. | |
| AI for Scientific Simulation and Discovery Lab | 12/2023 - 7/2024 |
| Research Intern (advisor: Tailin Wu) | Westlake University, Zhejiang, China |
| • AI for Science. | |
| School of Information Science and Technologies | 9/2018 - 6/2024 |
| Ph.D. (advisor: Yi Jiang) | Fudan University, Shanghai, China |
| • AI + Communication. | |

OTHER INFORMATION

- **Honors:**
 - Scholarship of Academic Excellence (2018-2019, 2019-2020, 2020-2021, 2021-2022, 2022-2023)
 - Scholarship of Academic Excellence (2014-2015, 2015-2016)
 - Outstanding Student Leader (2015-2016)
- **Reviewers for Journals:**
 - IEEE Internet of Things Journal (IoT)
 - IEEE Transactions on Communications (TCOM)
 - IEEE Transactions on Machine Learning in Communications and Networking (TMLCN)
- **Teaching Experience:**
 - Teaching Assistant, Fudan University.
 - Responsible for enhancing students' course comprehension and managing grading of homework and exams.
 - Mathematical Basis of Artificial Intelligence: Tutored 120 master's students. 9/2023 - 2/2024
 - Mathematical Basis of Artificial Intelligence: Tutored 110 master's students. 9/2021 - 2/2022
 - Linear Algebra: Tutored 200 undergraduate students. 9/2019 - 1/2020
- **Hobbies:**
 - Running, dancing, badminton, and photography.