

Tianxin Wang



tianxin.wang@sjtu.edu.cn (primary) | t.wang23@imperial.ac.uk

Google Scholar | LinkedIn | Github | Website

EDUCATION

- **Imperial College London** Sep 2023 - On
Ph.D. visiting student London, U.K.
 - Co-supervisor: [Prof. Geoffrey Ye Li](#), Fellow of Royal Academy of Engineering (FREng)
- **Shanghai Jiao Tong University (SJTU)** Sep 2020 - Sep 2025 (Expected)
Ph.D. candidate, Information and Communication Engineering Shanghai, China
 - Supervisor: [Prof. Xudong Wang](#), IEEE Fellow
 - Full scholarship of Zhiyuan Honors Doctorate Program (~1%) , GPA: 3.8/4.0
- **Hong Kong Polytechnic University** Sep 2017 - Jan 2018
Exchange student, Electronic Information Engineering Hong Kong, China
 - GPA: 4.0/4.0
- **Southeast University (SEU)** Sep 2016 - Jun 2020
B.S., Information Science and Engineering Nanjing, China
 - Grade: 91.2/100 (~5%)

RESEARCH AND WORK EXPERIENCE

- **Intelligent Transmission and Processing Laboratory, Imperial College London**  Sep 2023 - On
Graduate Research Assistant London, U.K.
 - Worked on [AI for Communications](#): test-time adaptation of neural receivers, collaborative learning for developing for generalizable and robust neural receivers
- **Wireless Networking and Artificial Intelligence Lab, UM-SJTU Joint Institute**  Sep 2020 - On
Graduate Research Assistant Shanghai, China
 - Worked on [AI for Networks](#): network slicing for radio access networks, resource and topology planning for high-frequency backhaul mesh networks, and etc.
- **National Mobile Communications Research Laboratory, Southeast University** Jan 2019 - Jun 2019
Undergraduate Research Assistant Nanjing, China
 - Implemented several signal processing algorithms, e.g., MUSIC, for a 5.8GHz multi-antenna radar system, and conducted human movement detection based on the received wireless signals
- **Siemens Technology China** Jun 2019 - Aug 2019
Software Engineer in Department of Internet-of-Things (IoT) Suzhou, China
 - Deployed network services and virtual networking computing modules for Siemens remote medical treatment platform

PUBLICATIONS AND PATENTS

C=CONFERENCE, J=JOURNAL, P=PATENT, S=IN SUBMISSION

- [C.1] **T. Wang**, X. Wang, and G. Y. Li, "GraphRx: Graph-Based Collaborative Learning among Multiple Cells for Uplink Neural Receivers," accepted by **IEEE Conference on Computer Communications (INFOCOM)** 2025. **[Acceptance rate=18.6%]**
- [C.2] S. Wang, **T. Wang**, and X. Wang, "FedPDA: Collaborative Learning for Reducing Online-Adaptation Frequency of Neural Receivers," accepted by **INFOCOM** 2025. **[Acceptance rate=18.6%]**
- [C.3] **T. Wang**, S. Wang, X. Wang, and G. Y. Li, "Collaborative Learning for Less Online Retraining of Neural Receivers," in **Proceedings of IEEE Workshop on Machine Learning for Signal Processing (MLSP)**, 2024. **[Paper]**
- [C.4] **T. Wang** and X. Wang, "Boosting Capacity for 6G Terahertz Mesh Networks Based on Bottleneck Structures," in **Proceedings of IEEE Global Communications Conference (GLOBECOM)**, 2023, pp. 4589-4594. **[Paper]**
- [J.1] **T. Wang**, S. Chen, Y. Zhu, A. Tang and X. Wang, "LinkSlice: Fine-Grained Network Slice Enforcement Based on Deep Reinforcement Learning," **IEEE Journal on Selected Areas in Communications**, vol. 40, no. 8, pp. 2378-2394, Aug. 2022. **[JCR-Q1, IF = 13.8]** **[Paper]**



- [J.2] T. Wang and X. Wang, "DeepRP: Bottleneck Theory Guided Relay Placement for 6G Mesh Backhaul Augmentation," accepted by **IEEE Transactions on Mobile Computing**, Oct. 2024. **[JCR-Q1, IF = 7.7]** [Paper]
- [J.3] T. Wang, X. Wang and Y. -B. Lin, "SideSeeker: Contention-Based Distributed Relay Finding for Sidelink Mesh Networks," **IEEE Wireless Communications Letters**, vol. 13, no. 10, pp. 2802-2806, Oct. 2024 [Paper]
- [P.1] T. Wang, A. Tang, X. Wang, and Z. Li, "A Method for Distributed Network Topology Reconfiguration Under Centralized Coordination," **Patent Application**, PCT/CN2023/085658, Mar. 2023.
- [S.1] T. Wang, X. Wang, and G. Y. Li, "GraphRx: Graph-Based Collaborative Learning among Multiple Cells for Uplink Neural Receivers," Under preparation for **IEEE Transactions on Mobile Computing**.

SELECTED RESEARCH PROJECTS

COMM. = COMMUNICATIONS, NET. = NETWORKS

- **AI for Comm.: Personalized Federated Learning for OFDM Neural Receivers** Aug 2023 - Jul 2024
 - Designed a collaboration-graph-based personalized federated learning framework (*GraphRx*) to collaboratively retrain uplink neural receivers among multiple cells in online environments
 - Derived an approximate generalization bound to enable optimization of the collaboration graph at the server without accessing local data
 - Achieved 0.5-2.1dB gain in coded BER gain compared with baseline schemes
- **AI for Net.: DRL-based Relay Placement for 6G Mesh Backhaul Networks** Jul 2022 - Jul 2023
 - Established a clique-based bottleneck theory: 1) deriving fairness-based network throughput with a bottleneck structure of bottleneck cliques; 2) quantifying the impact of each clique on the throughput
 - Designed a deep reinforcement learning (DRL) based relay placement scheme (*DeepRP*) guided by the bottleneck theory, so that the backhaul architecture is augmented by adding relays
 - Achieved 10.4-32.1% throughput gain than those of baseline schemes
- **AI for Net.: DRL-based Network Slice Enforcement in Multi-Cell Network Slicing** Sep 2020 - Dec 2021
 - Designed a DRL-based slice enforcement framework (*LinkSlice*) for fine-grained resource allocation across multiple cells, where DRL is combined with a greedy algorithm to enable efficient learning
 - Optimized radio resource consumption while ensuring soft slice isolation, QoS requirements, and conformance to long-term slicing policies
 - Achieved a notable spectral efficiency gain of 18.5% compared with baseline schemes

HONORS AND AWARDS

- SJTU graduate student excellence scholarship (~1/38) 2024
- Full scholarship of SJTU Zhiyuan Honors Doctorate Program (~1%)[2020 - 2025
- First prize (~3/70) in Oral Presentation of 2023 SJTU Boxue Zhiyuan Doctoral Academic Forum [2023
- SJTU Merit Student and SEU Merit student 2019 - 2022
- Grand prize (the highest award, ~1%) in National English Competition for College Students (NECCS) 2019
- First prize in SEU Mathematical Contest in Modeling (MCM) 2018
- Han Sang Scholarship in Southeast University 2017

SERVICE AND TEACHING EXPERIENCE

- Reviewer for **IEEE Transactions on Vehicle Technologies (TVT)** 2024
- Peer review assistant for **IEEE Conference on Computer Communications (INFOCOM)** 2022-2024
- Teaching assistant of Probability and Random Processes, Computer Networks 2020

TECHNICAL SKILLS

- **Knowledge Base:** wireless communication theory, computer networks, deep learning, 3GPP standards especially on MAC protocols [TS 38.821], NR sidelink [TS 38.885, TS 38.886], access to unlicensed spectrum [TS 38.889], IEEE 802.11 Wi-Fi standards
- **Programming Languages and frameworks:** Python (TensorFlow, PyTorch), Matlab, C++ (for NS-3)
- **Natural Languages:** Mandarin (native), English (proficiency), French (elementary), Cantonese (elementary)
- **Standardized Grades:** IELTS 8.0 (L9/R8.5/W7.5/ S7.5, in 2023), GRE 328 + 4 (V161/Q167/W4.0, in 2019)

REFERENCES

1. **Dr. Xudong Wang**
John Wu and Jane Sun Chair Professor, UM-SJTU Joint Institute, Shanghai Jiao Tong University
Email: wxudong@sjtu.edu.cn (*Relationship: Ph.D. Supervisor*)
2. **Dr. Geoffrey Ye Li**
Chair Professor, EEE, Imperial College London
Email: geoffrey.li@imperial.ac.uk (*Relationship: Ph.D. Co-supervisor*)