Dr. Zirui Zhuang

CONTACT INFORMATION

Research Building 511, XiTuCheng Rd. #10,   zr.zz.alp@gmail.com,
Beijing, China, 100876   zhuangzirui@bupt.edu.cn

EDUCATION

Beijing University of Posts and Telecommunications, Beijing, China
Ph.D. in Information and Communication Engineering,   November, 2020
B.S. in Electronic Information Engineering,   July, 2015

ACADEMIA EXPERIENCE

Beijing University of Posts and Telecommunications, Beijing, China
State Key Laboratory of Networking and Switching Technology
School of Computer Science
    Associate Researcher   **January, 2023 - Present**
    Postdoctoral Research Fellow   **January, 2021 - Janurary, 2023**
University of Houston, Texas, United States
Wireless Networking, Signal Processing and Security Lab
ECE Department
    Visiting Scholar   **May, 2019 - November, 2019**

INDUSTRY EXPERIENCE

E-Byte Co., Ltd., (*formerly known as* EBupt Co., Ltd.,) Beijing, China
Technical Expert   **February, 2022 - Present**
Senior Research and Development   **November, 2020 - February, 2022**
Research and Development   **July, 2015 - November, 2020**
Internship   **September, 2014 - July, 2015**

GRANT

Academia Projects

1. **Participant** of joint funds project: "A deep reinforcement learning-based new method on dynamic routing: research and verification," National Natural Science Foundation of China, CNY 2,560,000, U23B2001, 2024-2027.

2. **Principal Investigator** of general project: "Knowledge-driven intelligent decision theory for edge networks routing," China Postdoc Science Foundation, CNY 80,000, 2022M710468, 2022-2024.

3. **Principal Investigator** of young scientists project: "Case-based learning for intelligent routing in edge networks: mechanism, theory, and stability analysis," National Natural Science Foundation of China, CNY 300,000, 62101064, 2021-2024.

4. **Participant** of general project: "A research on transient edge resource collaboration theory for autonomous driving networks," National Natural Science Foundation of China, CNY 640,000, 62071067, 2021-2024.

5. **Participant** of a subproject of "Broadband Communications and New Networks," National Key Research and Development Program of China, CNY 6,740,000, 2020-2023.

6. **Participant** of general project: "A research on machine learning-based resource management optimization for software-defined networks," Natural Science Foundation of Beijing, CNY 180,000, 4182041, 2018-2020.

7. **Participant** of general project: "A research on multi-path transmission mechanism and joint optimization theory for software-defined data centers," National Natural Science Foundation of China, CNY 580,000, 61671079, 2017-2020.

Industry Projects

1. **Principal Investigator** of project "A long-term stable network resource allocation system," CNY 1,000,000, 2023-2024.

2. **Participant** of collaboration project "A research on the theory and technologies of knowledge-defined networking," BUPT-CM Innovation Center, CNY 2,450,000, 2020-2023.

PROFESSIONAL ACTIVITIES

Editor

- Guest Editor, Electronics, special issue on "Advances in Information Retrieval and Natural Language Processing", 2023.

Technical Program Committee

- Member of Technical Program Committee of IEEE Wireless Communications and Networking Conference (WCNC), 2024

- Member of Technical Program Committee of IEEE Global Communications Conference (GLOBECOM), 2023

- Member of Technical Program Committee of European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECMLPKDD), 2023, 2024

- Member of Technical Program Committee of ACM International Conference on Multimedia Retrieval (ICMR), 2023, 2024

- Member of Program Committee of ACM Multimedia (MM), 2023

- Member of Program Committee of International Conference on Database Systems for Advanced Applications (DASFAA), 2024

- Member of Program Committee of ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD), 2024

Invited Talk

- Invited Talk, "Knowledge-defined edge network routing," 2022 Cross Strait Radio Science and Wireless Technology Conference (CSRSWTC), December, 2022

Journal Reviewer

- IEEE Journal on Selected Areas in Communications
- IEEE Internet of Things Journal
- IEEE Systems Journal
- IEEE Transactions on Mobile Computing
- IEEE Transactions on Network Science and Engineering
- IEEE/ACM Transactions on Networking
- IEEE Communications Letters
- Future Generation Computer Systems
- Knowledge-Based Systems
- Artificial Intelligence in Medicine
- Ad Hoc & Sensor Wireless Networks
- Journal of Communications and Networks
- Springer Journal of Cloud Computing: Advances, Systems and Applications
- Scientific Reports
- SN Applied Sciences
- Results in Control and Optimization

Conference Reviewer

- IEEE Globecom 2023
- ACM MM 2023
- ECMLPKDD 2023
- ACM UIST 2023
- ACM ICMR 2023
- IEEE WCNC 2022, 2024
- IEEE WCNC 2021 Workshops
- IEEE ICCC 2020
- MobiQuitous 2019

PUBLICATIONS

Edited Books

1. Qi Qi, Xiaoyuan Fu, Zirui Zhuang, Jingyu Wang, and Jianxin Liao. *Deep Reinforcement Learning for Network Intelligence*. Posts & Telecom Press Co., Ltd., 2021.

2. Jingyu Wang, Haifeng Sun, Jianxin Liao, Jing Wang, Qi Qi, and Zirui Zhuang. *Smart Service Cloud Networks (Edition 2)*. Posts & Telecom Press Co., Ltd., 2019.

3. Jingyu Wang, Jianxin Liao, Jing Wang, Qi Qi, and Zirui Zhuang. *Smart Service Cloud Networks*. Posts & Telecom Press Co., Ltd., 2017.

Journal Publications
Published or Accepted

1. Rongxin Han, Jingyu Wang, Qi Qi, Dezhi Chen, Zirui Zhuang, Haifeng Sun, Xiaoyuan Fu, Jianxin Liao, Song Guo. "Dynamic Network Slice for Bursty Edge Traffic." *IEEE/ACM Transactions on Networking*, 2024. *Accepted.*

2. Xiaoyuan Fu, Quan Yuan, Zirui Zhuang, Yang Li, Jianxin Liao, and Dongmei Zhao. "TacNet: A Tactic-Interactive Resource Allocation Method for Vehicular Networks." *IEEE Internet of Things of Journal*, 2023. *Accepted.*

3. Yu Liu[#], Zirui Zhuang[#], Qi Qi[#], Jingyu Wang, Dezhi Chen, Lu Lu, Hongwei Yang, Jianxin Liao, and Zhu Han. "Slice sandwich: Jagged slicing multi-tier dynamic resources for diversified V2X services." *IEEE Transactions on Mobile Computing*, vol. 23, num. 5, (May 2024): 4285 – 4302. *Online June 2023.*

4. Yu Liu, Jingyu Wang, Qi Qi, Zirui Zhuang, Jianxin Liao, and Zhu Han. "Towards high-powered connected autonomous vehicles: A cooperative solution via transient edge intelligence provision." *IEEE Communications Magazine*, vol. 61, num. 12, (December 2023): 94 – 100. *Online May 2023.*

5. Jingyu Wang, Lei Zhang, Yiran Yang, Zirui Zhuang, Qi Qi, Haifeng Sun, Lu Lu, Junlan Feng, Jianxin Liao. "Network meets ChatGPT: Intent autonomous management, control and operation." *Journal of Communications and Information Networks*, vol. 8, num. 2, (September 2023): 239 – 255.

6. Tianjian Dong, Qi Qi, Jingyu Wang, Zirui Zhuang, Haifeng Sun, Jianxin Liao, and Zhu Han. "Standing on the shoulders of giants: Cross-slice federated meta learning for resource orchestration to cold-start slice." *IEEE/ACM Transactions on Networking*, vol. 31, num. 2, (April 2023): 828 – 845. *Online August 2022.*

7. Long Zhang, Xiaozheng Ma, Zirui Zhuang, Haitao Xu, Vishal Sharma, and Zhu Han. "Q-learning aided intelligent routing with maximum utility in cognitive UAV swarm for emergency communications." IEEE Transactions on Vehicular Technology, vol. 72, num. 3, (March 2023), 3707 – 3723.

8. Tianjian Dong[#], Zirui Zhuang[#], Qi Qi, Jingyu Wang, Haifeng Sun, F. Richard Yu, Tao Sun, Cheng Zhou, and Jianxin Liao. "Intelligent joint network slicing and routing via GCN-powered multi-task deep reinforcement

learning." *IEEE Transactions on Cognitive Communications and Networking* vol. 8, num. 2, (June 2022): 1269 – 1286.

9. Jingyu Wang, and Zirui Zhuang[*]. "Research on a knowledge-defined polymorphic network attainable service architecture." *Journal on Communications* vol. 43, num. 4, (April 2022): 71 – 82.

10. Jingyu Wang, Cheng Zhou, Lei Zhang, Cong Liu, Zirui Zhuang, Hongwei Yang, Danyang Chen, Yanhong Zhu, Lu Lu, and Jianxin Liao. "Knowledge-defined intent-based network autonomy." *Telecommunications Science* vol. 37, num. 9, (September 2021): 1 – 13.

11. Tianjian Dong, Qi Qi, Jingyu Wang, Alex X. Liu, Haifeng Sun, Zirui Zhuang, and Jianxin Liao. "Generative adversarial network-based transfer reinforcement learning for routing with prior knowledge." *IEEE Transactions on Network and Service Management* vol. 18, num. 2, (May 2021): 1673 – 1689.

12. Zirui Zhuang, Jingyu Wang, Qi Qi, Jianxin Liao, and Zhu Han. "Adaptive and robust routing with Lyapunov-based deep RL in MEC networks enabled by blockchains." *IEEE Internet of Things Journal* vol. 8, num. 4, (February 2021): 2208 – 2225.

13. Kai-Chu Tsai, Zirui Zhuang, Ricardo Lent, Jingyu Wang, Qi Qi, Lichun Wang, and Zhu Han. "Tensor-based reinforcement learning for network routing." *IEEE Journal of Selected Topics in Signal Processing* vol. 15, num. 3, (February 2021): 617 – 629.

14. Dezhi Chen, Qi Qi, Zirui Zhuang, Jingyu Wang, Jianxin Liao, and Zhu Han. "Mean field deep reinforcement learning for fair and efficient UAV control." *IEEE Internet of Things Journal* vol. 8, num. 2, (January 2021): 813 – 828.

15. Qi Qi, Lingxin Zhang, Jingyu Wang, Haifeng Sun, Zirui Zhuang, Jianxin Liao, and F Richard Yu. "Scalable parallel task scheduling for autonomous driving using multi-task deep reinforcement learning." *IEEE Transactions on Vehicular Technology* vol. 69, num. 11, (November 2020): 13861 – 13874.

16. Zirui Zhuang, Jingyu Wang, Qi Qi, Haifeng Sun, and Jianxin Liao. "Toward greater intelligence in route planning: A graph-aware deep learning approach." *IEEE Systems Journal* vol. 14, num. 2, (June 2020): 1658 – 1669.

17. Jingyu Wang, Zirui Zhuang, Qi Qi, Tonghong Li, and Jianxin Liao. "Deep reinforcement learning-based cooperative interactions among heterogeneous vehicular networks." *Applied Soft Computing* vol. 82, (September 2019): 105557.

18. Zirui Zhuang, Wang Jingyu, and Tong Xu. "Tenant-oriented customized VM networking technology." *Telecommunications Science* vol. 31, num. 10, (October 2015): 144 – 150.

In Revision or Submitted

19. Menghao Zhang, Jingyu Wang, Qi Qi, Zirui Zhuang, Haifeng Sun, and Jianxin Liao. "Cognition Guided Video Anomaly Detection Framework for

Surveillance Services." Submitted to *IEEE Transactions on Services Computing*.

20. Jianxin Liao, Qi Qi, Jingyu Wang, Jing Wang, Zirui Zhuang. "6G intelligent service networking: Vision, architecture, and key technologies." Submitted to *SCIENTIA SINICA Informationis*.

21. Haifeng Sun, Xingjian Liao, Jingyu Wang, Qi Qi, Zirui Zhuang, Jianxin Liao, Dapeng Oliver Wu. "Fast and scalable ACL policy solving under complex constraints with graph neural networks." Submitted to *IEEE/ACM Transactions on Networking*.

22. Rongxin Han, Jingyu Wang, Qi, Qi, Dezhi Chen, Zirui Zhuang, Haifeng Sun, Xiaoyuan Fu, Jianxin Liao, Song Guo. "Dynamic network slice for bursty edge traffic." Submitted to *IEEE/ACM Transactions on Networking*.

23. Jingyu Wang, Ruilong Ma, Xiang Yang, Qi Qi, Zirui Zhuang, Jing Wang, Jianxin Liao and Song Guo, "DeepZoning: Re-accelerate CNN inference with zoning graph for IoT edge cluster." Submitted to *IEEE Transactions on Parallel and Distributed Systems*.

24. Haifeng Sun, Jingyu Wang, Huazheng Wang, Zirui Zhuang, Qi Qi, Lu Lu, and Jianxin Liao. "Intent-based edge device cooperation: Resource knowledge graph for incomplete semantic reasoning." Submitted to *IEEE Communications Magazine*.

Conference Publications
Published or Accepted

1. Ruilong Ma, Xiang Yang, Jingyu Wang, Qi Qi, Haifeng Sun, Jing Wang, Zirui Zhuang, and Jianxin Liao. "HPipe: Large Language Model Pipeline Parallelism for Long Context on Heterogeneous Cost-effective Devices". In *2024 Annual Conference of the North American Chapter of the Association for Computational Linguistics* (NAACL'24). Mexico City, Mexico, June, 2024. *Accepted.*

2. Menghao Zhang, Jingyu Wang, Qi Qi, Haifeng Sun, Zirui Zhuang, Pengfei Ren, Ruilong Ma, and Jianxin Liao. "Multi-Scale Video Anomaly Detection by Multi-Grained Spatio-Temporal Representation Learning" In *Proceedings of the IEEE/CVF Computer Vision and Pattern Recognition Conference* (CVPR'24). Seattle, USA, June 2024. *Accepted.*

3. Zicheng Wang[#], Zirui Zhuang[#], Jingyu Wang, Qi Qi, Haifeng Sun, and Jianxin Liao. "Fast Policy Convergence for Traffic Engineering with Proactive Distributed Message-Passing". In *Proceedings of the 38th IEEE International Parallel & Distributed Processing Symposium* (IPDPS'24). San Francisco, CA, USA, May 2024. *Accepted.*

4. Yuexi Yin, Zirui Zhuang, Jingyu Wang, Qi Qi, Haifeng Sun, Xiaoyuan Fu and Jianxin Liao. "Efficient Throughput and Loop-Free Routing: An Adaptive Second-Order Backpressure Algorithm". In *IEEE International Conference on Computer Communications 2024 Poster* (INFOCOM'24 Poster). Vancouver, Canada, May 2024. *Accepted.*

5. Zhenglong Wu, Qi Qi, Zirui Zhuang, Haifeng Sun, and Jingyu Wang. "Pre-Tokenization of Numbers for Large Language Models" In *The Twelfth International Conference on Learning Representations - Tiny Papers Track* (ICLR'24 Tiny). Vienna, Austria, May 2024. *Accepted.*

6. Rongxin Han, Jingyu Wang, Qi Qi, Haifeng Sun, Chaowei Xu, Zhaoyang Wan, Zirui Zhuang, Yichuan Yu, and Jianxin Liao. "NetRen: Service Migration-Driven Network Renascence with Synthesizing Updated Configuration." In *International Conference on Architectural Support for Programming Languages and Operating Systems* (ASPLOS'24). San Diego, CA, USA, April 2024. *Accepted.*

7. Yian Zhu, Ziye Jia, Qihui Wu, Chao Dong, Zirui Zhuang, Huiling Hu, and Qi Cai. "UAV Trajectory Tracking via RNN-enhanced IMM-KF with ADS-B Data." in *Proceedings of the IEEE Wireless Communications and Networking Conference* (WCNC'24), Dubai, United Arab Emirates, Apr. 2024. *Accepted.*

8. Chenyang Zhao, Yuebin Guo, Jingyu Wang, Qi Qi, Zirui Zhuang, Haifeng Sun, Lingqi Guo, Yuming Xie, and Jianxin Liao. "EPVerifier: Accelerating update storms verification with edge-predicate." In *Proceedings of the 21st USENIX Symposium on Networked Systems Design and Implementation* (NSDI'24). Santa Clara, CA, USA, April 2024. *Accepted.*

9. Xinyu Liu, Pengfei Ren, Yuanyuan Gao, Jingyu Wang, Haifeng Sun, Qi Qi, Zirui Zhuang, and Jianxin Liao. "Keypoint Fusion for RGB-D Based 3D Hand Pose Estimation." In *Proceedings of the 38th Annual AAAI Conference on Artificial Intelligence* (AAAI'24). Vancouver, Canada, Feburary 2024. *Accepted.*

10. Chengsen Wang[#], Zirui Zhuang[#], Qi Qi, Jingyu Wang, Xingyu Wang, Haifeng Sun, and Jianxin Liao. "Drift doesn't matter: dynamic decomposition with diffusion reconstruction for unstable multivariate time series anomaly detection" *Proceedings of the Thirty-seventh Conference on Neural Information Processing Systems* (NeurIPS'23). New Orleans, LA, USA, December 2023. *Accepted.*

11. Xingjian Liao, Haifeng Sun, Jingyu Wang, Qi Qi, Zirui Zhuang, Jianxin Liao, and Guang Yang. "Solving distributed ACL policies under complex constraints with graph neural networks." *Proceedings of the 31st IEEE International Conference on Network Protocols* (ICNP'23). IEEE, Reykjavik, Iceland, October, 2023.

12. Ruilong Ma, Jingyu Wang, Qi Qi, Xiang Yang, Haifeng Sun, Zirui Zhuang, and Jianxin Liao. "Poster: PipeLLM: Pipeline LLM inference on heterogeneous devices with sequence slicing." In *SIGCOMM'23 Posters and Demos*, 1126 — 1128. ACM, New York City, USA, September 2023.

13. Hongchuan He, Dezhi Chen, Zirui Zhuang, Qi Qi, Lejian Zhang, Tong Xu, and Jingyu Wang. "Fine-grained flow control agent on path MTU for IoT software." In *Proceedings of the Asia-Pacific Symposium on Internetware* (Internetware'23), 144 — 153. ACM, Hangzhou, China, August 2023.

14. Jinming Wu, Qi Qi, Jingyu Wang, Haifeng Sun, Zhikang Wu, Zirui Zhuang,

and Jianxin Liao. "Not only pairwise relationships: Fine-grained relational modeling for multivariate time series forecasting." In *Proceedings of the 32nd International Joint Conference on Artificial Intelligence* (IJCAI'23), 4416 – 4423. IJCAI.org, Macao, S.A.R, China, August 2023.

15. Jinyu Zhao, Haifeng Sun, Jingyu Wang, Qi Qi, Zirui Zhuang, Shimin Tao, and Jianxin Liao. "CONFPILOT: A pilot for faster configuration by learning from device manuals." In *Proceedings of the 2023 IEEE International Conference on Distributed Computing Systems* (ICDCS'23). IEEE, Hongkong, China, July 2023.

16. Ruilong Ma, Xiang Yang, Qi Qi, Jingyu Wang, Zirui Zhuang, Jing Wang, and Xin Wang. "Brief Announcement: Accelerate CNN inference with zoning graph at dynamic granularity." In *Proceedings of the 35th ACM Symposium on Parallelism in Algorithms and Architectures* (SPAA'23), 295 — 298. ACM, Orlando FL USA, June 2023.

17. Menghao Zhang, Jingyu Wang, Jing Wang, Qi Qi, Zirui Zhuang, Haifeng Sun, and Ning Xiao. "Robust video anomaly detection framework via prior knowledge and multi-path frame prediction." In *Proceedings of the 2023 IEEE International Conference on Acoustics, Speech and Signal Processing* (ICASSP'23). IEEE, Rhodes Island, Greece, June 2023.

18. Zhixian Chu, Lingqi Guo, Jingyu Wang, Qi Qi, Zirui Zhuang, Haifeng Sun, Cheng Zhou. "HIRN: A hierarchical intent refinement approach for dependable network slicing with multi-path resource allocation," in *Proceedings of the 53rd Annual IEEE/IFIP International Conference on Dependable Systems and Networks* (DSN'23). IEEE, Porto, Portugal, June 2023.

19. Peng Zhan, Guangyi Qin, Xingxin Qian, Xiong Wang, Jing Ren, Zirui Zhuang, and Shizhong Xu. "Deep reinforcement learning based fast anomaly detection and localization for programmable networks." In *Proceedings of the 2023 IEEE International Conference on Communications* (ICC'23). IEEE, Rome, Italy, May 2023.

20. Chen Hu, Lei Zhang, Dezhi Chen, Zirui Zhuang, Qi Qi, Cong Liu, Jianxin Liao, and Jingyu Wang. "Digital twins-based multi-agent deep reinforcement learning for UAV-assisted vehicle edge computing." In *Proceedings of the 2022 IEEE International Conference on Ubiquitous Intelligence and Computing* (UIC'22). IEEE, Haikou, China, December 2022.

21. Shaoxiong Zhu, Qi Qi, Zirui Zhuang, Jingyu Wang, Haifeng Sun, and Jianxin Liao. "FedNKD: A dependable federated learning using fine-tuned random noise and knowledge distillation." In *Proceedings of the 2022 ACM International Conference on Multimedia Retrieval* (ICMR'22), 185 – 193. ACM, Newark, NJ, USA, June 2022.

22. Yixiao Li, Lixiang Li, Zirui Zhuang, Yuan Fang, and Yixian Yang. "ResNet approach for coding unit fast splitting decision of HEVC intra coding." In *Proceedings of the 2021 IEEE Sixth International Conference on Data Science in Cyberspace* (DSC'21), 130 -– 135. IEEE, Shenzhen, China, October 2021.

23. Bo He, Jingyu Wang, Qi Qi, Haifeng Sun, Zirui Zhuang, Cong Liu, and

Jianxin Liao. "DeepHop on edge: Hop-by-hop routing by distributed learning with Semantic Attention." In *Proceedings of the International Conference on Parallel processing* (ICPP'20), 1 – 11. ACM, Edmonton AB Canada, August 2020.

24. Zirui Zhuang, Jingyu Wang, Qi Qi, Jianxin Liao, and Zhu Han. "Adaptive and robust network routing based on deep reinforcement learning with Lyapunov optimization." In *Proceedings of the IEEE/ACM International Symposium on Quality of Service* (IWQoS'20), 1 – 10. IEEE, Hang Zhou, China, June 2020.

25. Yu Zhang, Zirui Zhuang, Feifei Gao, Jingyu Wang, and Zhu Han. "Multi-agent deep reinforcement learning for secure UAV communications." In *Proceedings of the IEEE Wireless Communications and Networking Conference* (WCNC'20), 1 – 5. IEEE, Seoul, South Korea, May 2020.

26. Zirui Zhuang, Jingyu Wang, Qi Qi, Haifeng Sun, and Jianxin Liao. "A case-based decision system for routing in packet-switched networks." In *Proceedings of the IEEE International Performance Computing and Communications Conference* (IPCCC'18), 1 – 2. IEEE, Orlando, FL, USA, November 2018.

27. Zirui Zhuang, Jingyu Wang, Qi Qi, Haifeng Sun, and Jianxin Liao. "Graph-aware deep learning based intelligent routing strategy." In *Proceedings of the IEEE Conference on Local Computer Networks* (LCN'18), 441 – 444. IEEE, Chicago, IL, USA, October 2018.

28. Yunming Xiao, Haifeng Sun, Zirui Zhuang, Jingyu Wang, and Qi Qi. "Common knowledge based transfer learning for traffic classification." In *Proceedings of the IEEE Conference on Local Computer Networks* (LCN'18), 311 – 314. IEEE, Chicago, IL, USA, October 2018.

Patents
Granted

1. Jingyu Wang, Qi Qi, Zirui Zhuang, Yuebin Guo, Lingqi Guo, Tong Xu, Jing Wang. "Method for multi-policy conflict avoidance in autonomous network." US patent, 2024, 11,909,592. 2024-02.

2. Jingyu Wang, Qi Qi, Zirui Zhuang, Yuebin Guo, Lingqi Guo, Tong Xu, and Jing Wang. "Multi-strategy conflict avoiding method in self-intelligent network." CN patent, 2023, 114,884,821. 2023-07.

3. Haifeng Sun, Zirui Zhuang, Daixuan Cheng, Jinyu Zhao, Qi Qi, Jingyu Wang, Wei Li, Jianxin Liao, and Jing Wang. "Heterogeneous device ontology matching method integrating semantic information." CN patent, 2023, 113,515,930. 2023-05.

4. Haifeng Sun, Zirui Zhuang, Bing Ma, Jingyu Wang, Cheng Zhang, Tong Xu and Jing Wang. "Search-based multi-turn dialog system and method." CN patent, 2023, 115,017,286. 2023-04.

5. Zirui Zhuang, Jingyu Wang, Huairuo Xu, Haifeng Sun, Daoxu Sheng, and Jing Wang. "System and method for transmitting panoramic video in real time." CN patent, 2023, 114,979,089. 2023-03.

TEACHING EXPERIENCE

Beijing University of Posts and Telecommunications, Beijing, China

- *Lecturer*, Undergraduate

    – *Principles of Computer Organization*
    – **Spring, 2024**, (Central campus)
    – *Frontiers of Academic Papers: Synopsis and Appreciation*
    – **Spring, 2024**, (Central campus)
    – **Spring, 2024**, (North campus)
    – *Practices of Java Programming Designs*
    – **Summer, 2024**, (North campus)

- *Guest Lecturer*, Undergraduate

    – *The Introduction of Software-Defined Networking*
    – **Spring, 2023**, (Central campus)
    – *Principles of Computer Organization*
    – **Spring, 2023**, (Central campus)

- *Guest Lecturer*, Undergraduate

    – *The Evolution of Information Technology*
    – **Fall, 2021 – 2023**, (Central campus)

SUPERVISED STUDENT THESES AND DISSERTATION PROJECTS

Theses and Dissertation Projects Currently in Progress:

1. Jiaqi Sun (proposal submitted, 2023) *Design and implementation of a control decision making mechanism based on differentiable optimization neural networks.* Undergraduate Thesis. Jointly supervised with Prof. Qi Qi.

2. Diyu Liang (proposal submitted, 2023) *Design and implementation of a virtual network based on Wireguard.* Undergraduate Thesis. Jointly supervised with Dr. Tong Xu.

Completed Theses and Dissertation Projects:

3. Yuexi Yin (2023). *Research and implementation of distributed adaptive optimization model oriented to traffic engineering.* Undergraduate Thesis.

4. Xiangwei Deng (2023). *Analysis and research of communication protocol optimization for distributed machine learning.* Undergraduate Thesis.

5. Zicheng Wang (2022). *Design and implementation of traffic engineering optimization system based on multi-agent deep reinforcement learning.* Undergraduate Thesis. Jointly supervised with Dr. Xiaoyuan Fu.

SUPERVISED STUDENTS INNOVATION PROJECTS

Innovation Projects for Graduate Student

1. *IntelliMate: Intelligent industrial inspection robot with autonomous environmental awareness.*   Work in progress. 2024
   Xinying Gao, *et al., School of Computer Science.*

2. *AutoReading: Digital twin-based cognitive sensing system for non-digitized instruments.*   Completed. 2022-2023
   Xinying Gao, *et al., School of Computer Science.*

Innovation Projects for College Freshman

3. *Tourism information fusion platform for Beijing based on big data and large models.*   Work in progress. 2023-2024
   Wenbo Li, *School of Economics and Management, 2023 batch,*
   Wenbo Sun, *School of Computer Science, 2023 batch,*
   Jieyu Tong, *School of Artificial Intelligence, 2022 batch,*
   Lichong Kang, *School of Computer Science, 2023 batch,*
   Xinhui Dai, *School of Information and Communication Engineering, 2023 batch.*

AWARDS TO SUPERVISED STUDENTS

Student Contests:

1. Ranked in the 2nd place. *Graph Neural Networking Challenge 2023*, as part of *ITU AI/ML in 5G Challenge.*   November 2023
   Zicheng Wang, graduate student, *School of Computer Science, Network Intelligence Research Center,*
   Yuanjie Duan, graduate student, *School of Computer Science, Network Intelligence Research Center,*
   Danyang Chen, research engineer, *China Mobile Research Institute,*
   Lingqi Guo, Ph.D. student, *School of Computer Science, Network Intelligence Research Center.*

Student Theses:

2. Outstanding Undergraduate Thesis of Higher Education Institutes in Beijing Municipality Area.   December 2023
   Yuexi Yin, *School of Computer Science, class of 2023.*

3. Outstanding Undergraduate Thesis of Beijing University of Posts and Telecommunications.   June 2023
   Yuexi Yin, *School of Computer Science, class of 2023.*

AWARDS

1. Excellent supervisor for undergraduate thesis.   December 2023
   from Beijing Municipal Commission of Education
   Top 0.9 percent of Beijing Municipal Area.

2. National scholarship of China for PhD students.   December 2018
   from Ministry of Education of the People's Republic of China

Top 0.9 percent nationwide.

3. Second prize, Electronic design contest - 2014 Intel Cup Embedded System Design Invitational Contest.   July 2014
   Top 12 percent worldwide.

4. Meritorious winner, 2014 Mathematical Contest in Modeling   April 2014
   Top 9 percent worldwide.

HOBBY

Swimming, cycling, and weight-lifting.

University staff swimming contest, Beijing, China   June, 2023
   2nd place in men's 50m freestyle
   3rd place in mixed 4x50m freestyle relay

University staff swimming contest, Beijing, China   June, 2021
   2nd place in men's 50m freestyle
   6th place in mixed 4x50m freestyle relay