

JINGRONG WANG

Department of Electrical & Computer Engineering ◇ University of Toronto, Canada

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EDUCATION

University of Toronto

October 2024 - Present

Postdoctoral Fellow

Toronto, Canada

- Supervisor: Dr. Ben Liang, Department of Electrical and Computer Engineering.
- Research interests: distributed learning, system optimization and design, and anomaly detection.

University of Toronto

September 2019 - September 2024

Ph.D. (GPA: 3.94/4)

Toronto, Canada

- Supervisor: Dr. Ben Liang, Department of Electrical and Computer Engineering.
- Thesis: Network Resource Allocation and Topology Design for Distributed Machine Learning.

University of Victoria

September 2017 - August 2019

MSc. (GPA: 9/9)

Victoria, Canada

- Supervisor: Dr. Jianping Pan, Department of Computer Science.
- Thesis: Mobility Management and Mobile Server Dispatching in Fixed-to-mobile and Mobile-to-mobile Edge Computing.

Beijing Jiaotong University

September 2013 - June 2017

BEng. (Grade: 89.1/100)

Beijing, China

- Supervisor: Dr. Siyu Lin, School of Electronic and Information Engineering.
- School of Electronic and Information Engineering, September 2015 - June 2017.
- School of Science with “Siyuan” Honor Program, September 2013 - June 2015.

RESEARCH & INDUSTRIAL EXPERIENCE

Ericsson Global AI Accelerator

March 2021 - September 2024

MITACS Accelerate Internship

Montreal, Canada

- With Emmanuel Thepie Fapi, Hardik Dalal, and Zhongwen Zhu.
- Distributed Machine Learning for Large-Scale IoT Systems with Mobile Edge Computing.
- Patent: PCT/IB2021/061946, PCT/IB2023/057370.

University of Toronto

September 2019 - Present

Research assistant and teaching assistant

Toronto, Canada

- Research assistant, Wireless Computing Lab (WCL).
- TA, ECE421 Introduction to Machine Learning, Winter'20, Fall'20, Winter'21, Fall'21, Fall'22, Fall'23.
- TA, ECE466 Computer Networks II, Winter'20.

University of Victoria

September 2017 - August 2019

Research assistant and teaching assistant

Victoria, Canada

- Research assistant, Protocols for Advanced Networking Laboratory (PANLab).
- Lab instructor, CSC 361 Computer Communication and Networks, Fall'18, Spring'19.
- Tutorial instructor, CSC 360 Operating Systems, Spring'18.

Innovation Training Program for College Students

March 2016 - March 2017

Group leader

Beijing, China

- Collaborated with Dr. Siyu Lin, Dr. Minming Ni, and Dr. Chao Shen.
- Designed a 5G ultra dense network (UDN) simulation platform for rail transportation scenarios.
- Recognized as a national program for college students.

Samsung Telecom China R&D Center

April - July 2017

Internship

Beijing, China

- Collaborated with Ran Gao and Jie Hao.

- Worked on product development for Samsung Browser, including data analysis and customer support.

China Railway Signal & Communication Co., Ltd.

Internship

August - September 2015

Beijing, China

- Collaborated with Dr. Jin Shi and Xin Wang.
- Participated in equipment installation and on-site investigation on Beijing subway line 8.

JOURNAL PUBLICATION

Google Scholar Citations: 311; H-Index: 7

- [ToN24] **Jingrong Wang**, Ben Liang, Zhongwen Zhu, Emmanuel Thepie Fapi, and Hardik Dalal, Communication-efficient network topology in decentralized learning: a joint design of consensus matrix and resource allocation, in press, to appear in the *IEEE/ACM Transactions on Networking*.
- [J1] **Jingrong Wang** and Ben Liang, Low-complexity distributed online min-max resource allocation without gradient or projection, submitted.
- [J2] **Jingrong Wang**, Ben Liang, Zhongwen Zhu, Emmanuel Thepie Fapi, and Hardik Dalal, Online topology and resource optimization for decentralized learning over dynamic networks, submitted.
- [IoTJ20] **Jingrong Wang**, Kaiyang Liu, and Jianping Pan, Online UAV-mounted edge server dispatching for mobile-to-mobile edge computing, *IEEE Internet of Things Journal*, vol. 7, no. 2, pp. 1375–1386, 2020.
- [CCF-ToN20] **Jingrong Wang**, Kaiyang Liu, George Tzanetakis, and Jianping Pan, Cooperative abnormal sound event detection in end-edge-cloud orchestrated systems, *CCF Transactions on Networking*, vol. 3, pp. 158–170, 2020.
- [TPDS24] Kaiyang Liu, **Jingrong Wang**, Zhiming Huang, and Jianping Pan, Sampling-based multi-job placement for heterogeneous deep learning clusters, *IEEE Transactions on Parallel and Distributed Systems*, vol. 35, no. 6, pp. 874–888, 2024.
- [TSC23] Kaiyang Liu, **Jingrong Wang**, Heng Li, Jun Peng, and Jianping Pan, Sampling-based caching for low latency in distributed coded storage systems, *IEEE Transactions on Services Computing*, vol. 16, no. 6, pp. 4275–4287, 2023.
- [TCC23] Kaiyang Liu, Jun Peng, **Jingrong Wang**, Zhiwu Huang, and Jianping Pan, Adaptive and scalable caching for low latency in distributed coded storage systems, *IEEE Transactions on Cloud Computing*, vol. 11, no. 2, pp. 1840–1853, 2023.
- [ToN22] Kaiyang Liu, Jun Peng, **Jingrong Wang**, and Jianping Pan, Optimal caching for low latency in distributed coded storage systems, *IEEE/ACM Transactions on Networking*, vol. 30, no. 3, pp. 1132–1145, 2022.
- [TCC22] Kaiyang Liu, Jun Peng, **Jingrong Wang**, Boyang Yu, Zhuofan Liao, Zhiwu Huang, and Jianping Pan, A learning-based data placement framework for low latency in data center networks, *IEEE Transactions on Cloud Computing*, vol. 10, no. 1, pp. 146–157, 2022.
- [TPDS20] Kaiyang Liu, Jun Peng, **Jingrong Wang**, Weirong Liu, Zhiwu Huang, and Jianping Pan, Scalable and adaptive data replica placement for geo-distributed cloud storages, *IEEE Transactions on Parallel and Distributed Systems*, vol. 31, no. 7, pp. 1575–1587, 2020.
- [TVT20] Qian Liu, Gang Chuai, **Jingrong Wang**, and Jianping Pan, Proactive Mobility Management with Trajectory Prediction based on Virtual Cells in Ultra-dense Networks, *IEEE Transactions on Vehicular Technology*, vol. 69, no. 8, pp. 8832–8842, 2020.

CONFERENCE PUBLICATION

- [ICDCS23] **Jingrong Wang** and Ben Liang, Distributed online min-max load balancing with risk-averse assistance, in *Proc. IEEE International Conference on Distributed Computing Systems*, 2023.
- [NETWORKING22] **Jingrong Wang**, Ben Liang, Zhongwen Zhu, Emmanuel Thepie Fapi, and Hardik Dalal, Joint consensus matrix design and resource allocation for decentralized learning, in *Proc. IFIP Networking*, 2022.

- [L4DC22] **Jingrong Wang** and B. Liang, Gradient and projection free distributed online min-max resource optimization, in *Proc. PMLR Learning for Dynamics and Control Conference*, 2022.
- [GLOBECOM18] **Jingrong Wang**, Kaiyang Liu, Minming Ni, and Jianping Pan, Learning-based mobility management under uncertainties for mobile edge computing, *IEEE Global Communications Conference*, 2018.
- [IPCCC18] **Jingrong Wang**, Kaiyang Liu, George Tzanetakis, and Jianping Pan, Learning-based cooperative sound event detection with edge computing, *IEEE International Performance Computing and Communications Conference*, 2018.
- [VTC17] **Jingrong Wang**, Xuanjin Yang, Shuyue Zhao, Lifei Zhang, Minming Ni, and Siyu Lin, Handover Performance Improvement for Ultra Dense Network of High-Speed Railway, in *Proc. IEEE Vehicular Technology Conference*, 2017.
- [LCN18] Kaiyang Liu, **Jingrong Wang**, Zhuofan Liao, Boyang Yu, and Jianping Pan, Learning-based adaptive data placement for low latency in data center networks, *IEEE Conference on Local Computer Networks*, 2018. **[Best Paper Award Candidates]**
- [ICC19] Qian Liu, Gang Chuai, **Jingrong Wang**, Jianping Pan, Weidong Gao, and Xuwen Liu, Proactive Mobility Management based on Virtual Cells in SDN-enabled Ultra-dense Networks, in *Proc. IEEE International Conference on Communications Workshops*, 2019.

AWARDS & HONORS

- UTGSU Student Conference Bursary Winner award, March 2024.
- UofT School of Graduate Studies (SGS) Conference Grant, September 2023.
- IEEE ICDCS Student Travel Grant, IEEE Computer Society's Technical Community on Distributed Processing (TCDP), June 2023.
- **Lieutenant Governors Silver Medal** for outstanding thesis (UVic), April 2020.
- UofT Edward S. Rogers Sr. Graduate Scholarships for PhD Program in ECE, September 2019.
- ACM SIGCOMM N²Women Chris Edmondson-Yurkanan Travel Grant, July 2019.
- UVic Graduate Award (Research & TA), June 2019.
- UVic PANLab Network Leadership Award, February 2019.
- IEEE GLOBECOM Student Travel Grant, November 2018.
- IEEE Pacific Rim Wu-Sheng Lu Graduate Scholarship, November 2018.
- The Martlet Chapter IODE Graduate Scholarship for Women, November 2018.
- UVic Faculty of Graduate Studies (FGS) Graduate Student Travel Grant, October 2018.
- N²Women Young Researcher Fellowship at IEEE LCN, August 2018.
- UVic CUPE4163 Conference Award, July 2018.
- UVic Graduate Award (Research & TA), June 2018.
- UVic Fellowship Award for Graduate Program in CS, September 2017.
- BJTU Academic Scholarship, September 2016.
- 2nd Prize of the National English Competition for College Students, May 2016.
- 1st Prize of BJTU School of Science Speech Context, December 2014.
- BJTU Social Work Scholarship, December 2014.

ACADEMIC SERVICE & CAREER DEVELOPMENT

Services

- Student Member: IEEE, IEEE ComSoc and IEEE Young Professionals, April 2018 – Present.
- Reviewer: IEEE VTC-Fall 2017/2020 (TPC), IEEE Internet of Things Journal, IEEE TVT.
- Chair, Women in Engineering (WIE) IEEE Newfoundland and Labrador Section, October 2024 – Present.
- Industrial Relations Lead, Women in Engineering IEEE Toronto Section, October 2024 – Present.

- UofT Chinese Students and Scholars Association (UTCSSA), Graduate Academics, September 2021 – September 2022.
- UofT Engineering Graduate Education Committee (EGEC), Grad rep, November 2020 – September 2021.
- UofT Graduate Students' Union (UTGSU), Grad rep, September 2020 – September 2021.
- UofT ECE Graduate Students' Society (ECEGSS), Communications Officer, September 2020 – September 2021.
- UVic CSC Chair Search Committee, Grad representative, 2019.
- BJTU 23rd Student Congress, Undergrad rep, 2016.
- BJTU Young Volunteers Association, Member in Publicity Department, 2014–2015.
- BJTU School of Science Debate Team, Member, 2014.

Activities & Volunteer

- IEEE Women in Engineering Panel at NECEC 2024, Organizer/Panel moderator, November 2024.
- Empowering Women Talk Series at IEEE Women in Engineering and Education, Organizer/moderator, November 2024.
- IEEE INFOCOM 2021 (Virtual), Online/Zoom Volunteer, May 2021.
- IEEE INFOCOM 2020 (Virtual), Online/Zoom Volunteer, July 2020.
- UofT Graduate Research Days, Luncheon volunteer, February 2020.
- N^2 Women Meeting at IEEE LCN 2018 and ACM SIGCOMM 2019, Organizer/Panel moderator.
- UVic Orientation & Student Recruitment Leadership Program, Orientation leader, 2018.
- CIPS BC “The Disruptive Power of Blockchain”, Luncheon volunteer, March 2018.
- UVic Global Community Holiday Dinner Program, Attendee, December 2017.
- BJTU Workshop on Fog and Mobile Edge Computing, Volunteer, July 2017.
- CUHK (SZ) Broad Area of Computer and Information Engineering, Workshop invitee, February 2017.
- BJTU Live Show, Rhinoceros in Love, Heroine Mingming, December 2015.
- Bali Kemenuh Volunteer & Learning Center (BKVLC), Volunteer as TA, July 2015.