

Juncheng Wang

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Education	Ph.D. in Electrical and Computer Engineering University of Toronto (UT), Toronto, Canada Advisors: Prof. Ben Liang (IEEE Fellow) and Prof. Min Dong (IEEE Fellow) Dissertation: <i>Online learning and optimization in communication networks</i>	09/2018-05/2023
	M.Sc. in Electrical and Computer Engineering University of Alberta (UA), Edmonton, Canada Advisors: Prof. Wilsun Xu (IEEE Fellow) and Prof. Hao Liang Thesis: <i>Event-based non-intrusive home current measurement using sensor array</i>	09/2014-05/2017
	B.Eng in Electrical Engineering Shanghai Jiao Tong University (SJTU), Shanghai, China Ranking: 1st in SJTU IEEE Honor Class 2014 in Electrical Engineering	09/2010-06/2014
Academic Experience	Research assistant in Communications Group in UT Research intern in Communications Group in UT Research assistant in Energy System Group in UA Research assistant in Automation Group in SJTU	09/2018-05/2023 06/2018-09/2018 09/2014-05/2017 09/2011-06/2013
Industry Experience	Internet of Things Engineer Research and Development Department in Appropolis Inc., Calgary, Alberta, Canada	05/2017-04/2018
Funding	Early Career Scheme (ECS) - \$ 700,077 HKD ECS Award - \$ 50,000 HK Research Grants Council (RGC)	09/2024-08/2026
Publications	Submitted J. Wang , M. Dong, B. Liang, G. Boudreau, and A. Afana, "Exploring temporal similarity for joint computation and communication in online distributed optimization," major revision in <i>IEEE/ACM Transactions on Networking (TON)</i> , Jul. 2024. L. He, Z. Jia, J. Wang , E. Lansard, Z. Han, and C. Yuen, "Joint power allocation and task scheduling for data offloading in non-geostationary orbit satellite networks," submitted to <i>IEEE Transactions on Network and Service Management (TNSM)</i> , Jun. 2024. J. Wang , B. Liang, M. Dong, G. Boudreau, and A. Afana, "Age-of-information minimization with weight limits for semi-asynchronous online distributed optimization," submitted to <i>IEEE/ACM Transactions on Networking (TON)</i> , Apr. 2024.	

Journal Articles (in reverse chronological order)

[J10] **J. Wang**, B. Liang, M. Dong, G. Boudreau, and H. Abou-Zeid, “[Joint online optimization of model training and analog aggregation for wireless edge learning](#),” *IEEE/ACM Transactions on Networking (TON)*, vol. 32, no. 2, pp. 1212-1228, Apr. 2024.

[J9] **J. Wang**, M. Dong, B. Liang, G. Boudreau, and H. Abou-Zeid, “[Hierarchical semi-online optimization for cooperative MIMO networks with information parsing](#),” *IEEE Transactions on Wireless Communications (TWC)*, vol. 23, no. 3, pp. 1943-1958, Mar. 2024.

The above journal papers are published after I joined HKBU.

[J8] **J. Wang**, M. Dong, B. Liang, and G. Boudreau, “[Periodic updates for constrained OCO with application to large-scale multi-antenna systems](#),” *IEEE Transactions on Mobile Computing (TMC)*, vol. 22, no. 11, pp. 6705-6722, Nov. 2023.

[J7] **J. Wang**, M. Dong, B. Liang, G. Boudreau, and H. Abou-Zeid, “[Delay-tolerant OCO with long-term constraints: Algorithm and its application to network resource allocation](#),” *IEEE/ACM Transactions on Networking (TON)*, vol. 31, no. 1, pp. 147-163, Feb. 2023.

[J6] **J. Wang**, B. Liang, M. Dong, and G. Boudreau, “[Online multi-cell coordinated MIMO wireless network virtualization with imperfect CSI](#),” *IEEE Transactions on Wireless Communications (TWC)*, vol. 21, no. 12, pp. 10455-10471, Dec. 2022.

[J5] **J. Wang**, B. Liang, M. Dong, G. Boudreau, and H. Abou-Zeid, “[Online distributed coordinated precoding for virtualized MIMO networks with delayed CSI](#),” *IEEE Wireless Communications Letter (WCL)*, vol. 11, no. 5, pp. 1012-1016, May 2022.

[J4] **J. Wang**, M. Dong, B. Liang, G. Boudreau, and H. Abou-Zeid, “[Distributed coordinated precoding for MIMO cellular network virtualization](#),” *IEEE Transactions on Wireless Communications (TWC)*, vol. 21, no. 1, pp. 106-120, Jan. 2022.

[J3] K.-L. Chen, Y. Guo, **J. Wang**, X. Yang, “[Contactless islanding detection method using electric field sensors](#),” *IEEE Transactions on Instrumentation and Measurement (TIM)*, vol. 70, pp. 1-13, Jan. 2021.

[J2] **J. Wang**, G. Geng, K.-L. Chen, H. Liang, and W. Xu, “[Event-based non-intrusive home current measurement using sensor array](#),” *IEEE Transactions on Smart Grid (TSG)*, vol. 9, no. 6, pp. 5878-5886, Nov. 2018.

[J1] G. Geng, **J. Wang**, K.-L. Chen, and W. Xu, “[Contactless current measurement for enclosed multiconductor systems based on sensor array](#),” *IEEE Transactions on Instrumentation and Measurement (TIM)*, vol. 66, no. 10, pp. 2627-2637, Oct. 2017.

Conference Articles (in reverse chronological order)

[C15] W. Xu, **J. Wang**, B. Liang, G. Boudreau, and H. Sokun, “[Distributed minimax fair optimization over hierarchical networks](#),” in *Proceedings of International Conference on Parallel Processing (ICPP)*, Gotland, Sweden, Aug. 2024.

[C14] L. He, Z. Jia, **J. Wang**, F. Wang, E. Lansard, and C. Yuen, “[Energy-efficient data offloading for earth observation satellite networks](#),” in *Proceedings of IEEE*

Vehicular Technology Conference (VTC), Singapore, Jun. 2024.

[C13] Q. Song, W. Lin, **J. Wang**, and H. Xu, “Towards robust learning to optimize with theoretical guarantees,” in *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, Seattle WA, USA, Jun. 2024.

[C12] J. Geng, Y. Hou, X. Tao, **J. Wang**, and B. Luo, “Adaptive federated learning in heterogeneous wireless networks with independent sampling,” in *Proceedings of IEEE International Conference on Communications (ICC)*, Denver, CO, USA, Jun. 2024.

[C11] Q. Song, **J. Wang**, J. Li, G. Liu, and H. Xu, “A learning-only method for multi-cell multi-user MIMO sum rate maximization,” in *Proceedings of IEEE International Conference on Computer Communications (INFOCOM)*, Vancouver, Canada, May 2024. (19.6% acceptance rate)

[C10] X. Zhao, X. Wang, **J. Wang**, and Q. Shi, “A stochastic proximal WMMSE for ergodic sum rate maximization,” in *Proceedings of IEEE International Conference on Acoustic, Speech and Signal Processing (ICASSP)*, Seoul, Korea, Apr. 2024.

[C9] X. Wang, X. Zhao, **J. Wang**, and Q. Shi, “WMMSE beamforming for user-centric cell-free networks with non-coherent joint transmission,” in *Proceedings of IEEE Global Communications Conference (GLOBECOM)*, Kuala Lumpur, Malaysia, Dec. 2023.

The above conference papers are published after I joined HKBU.

[C8] **J. Wang**, B. Liang, M. Dong, G. Boudreau, and A. Afana, “Online distributed optimization with efficient communication via temporal similarity,” in *Proceedings of IEEE International Conference on Computer Communications (INFOCOM)*, New York City, NY, USA, May 2023. (19.2% acceptance rate)

[C7] **J. Wang**, M. Dong, B. Liang, G. Boudreau, and H. Abou-Zeid, “Online model updating with analog aggregation in wireless edge learning,” in *Proceedings of IEEE International Conference on Computer Communications (INFOCOM)*, online conference, May 2022. (19.9% acceptance rate)

[C6] **J. Wang**, B. Liang, M. Dong, G. Boudreau, and H. Abou-Zeid, “Semi-online precoding with information parsing for cooperative MIMO wireless networks,” in *Proceedings of IEEE International Conference on Computer Communications (INFOCOM)*, online conference, May 2022. (19.9% acceptance rate)

[C5] **J. Wang**, B. Liang, M. Dong, G. Boudreau, and H. Abou-Zeid, “Delay-tolerant constrained OCO with application to network resource allocation,” in *Proceedings of IEEE International Conference on Computer Communications (INFOCOM)*, online conference, May 2021. (19.9% acceptance rate)

[C4] **J. Wang**, M. Dong, B. Liang, and G. Boudreau, “Online precoding design for downlink MIMO wireless network virtualization with imperfect CSI,” in *Proceedings of IEEE International Conference on Computer Communications (INFOCOM)*, online conference, Jul. 2020. (19.8% acceptance rate)

[C3] **J. Wang**, B. Liang, M. Dong, and G. Boudreau, “Online MIMO wireless network virtualization over time-varying channels with periodic updates,” in *Proceedings of IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC)*, online conference, May 2020.

[C2] **J. Wang**, M. Dong, B. Liang, and G. Boudreau, “[Online downlink MIMO wireless network virtualization in fading environments](#),” in *Proceedings of IEEE Global Communications Conference (GLOBECOM)*, Waikoloa, Hawaii, USA, Dec. 2019.

[C1] J. Wang, **J. Wang**, and W. Chen, “[Localization and navigation of intelligent wheelchair in dynamic environment](#),” in *Proceeding of Chinese Intelligent Automation Conference*, Yangzhou, Jiangsu, China, Jul. 2013.

Patents

[P9] G. Boudreau, M. Dong, B. Liang, and J. Wang, “[Online MIMO wireless network virtualization with unknown channel information](#),” US Patent US12003286 granted, Jun. 2024.

[P8] G. Boudreau, M. Dong, B. Liang, and J. Wang, “[Online convex optimization with periodic updates for downlink multi-cell MIMO wireless network virtualization](#),” US Patent US11979206 granted, May 2024.

[P7] G. Boudreau, M. Dong, B. Liang, and J. Wang, “[Online multi-cell coordinated MIMO wireless network virtualization with imperfect CSI](#),” US Patent Application PCT/IB2022/053974, Oct. 2023.

[P6] A. Afana, G. Boudreau, M. Dong, B. Liang, and J. Wang, “Constrained age of information scheduling for semi-asynchronous online distributed optimization,” US Provisional Patent Application P109004, Jul. 2023.

[P5] A. Afana, G. Boudreau, M. Dong, B. Liang, and J. Wang, “Online distributed optimization with efficient communication via temporal similarity,” International Patent Application PCT/IB2023/057601, Jul. 2023.

[P4] H. Abou-Zeid, G. Boudreau, M. Dong, B. Liang, and J. Wang, “[Delay-tolerant constrained online convex optimization](#),” US Patent Application PCT/IB2021/057106, Jan. 2023.

[P3] H. Abou-Zeid, G. Boudreau, M. Dong, B. Liang, and J. Wang, “[Distributed coordinated downlink precoding for multi-cell MIMO wireless network virtualization](#),” US Patent Application PCT/IB2021/054717, Nov. 2022.

[P2] H. Abou-Zeid, G. Boudreau, M. Dong, B. Liang, and J. Wang, “Online optimization for joint computation and communication in edge learning,” International Patent Application PCT/IB2022/057077, Jul. 2022.

[P1] H. Abou-Zeid, G. Boudreau, M. Dong, B. Liang, and J. Wang, “[Hierarchical online convex optimization](#),” US Patent Application PCT/IB2022/050212, Jan. 2022.

Selected Awards

IEEE INFOCOM 2023 Student Travel Grant	04/2023
Postdoctoral Fellowship (PDF)	02/2023
Natural Science and Engineering Research Council of Canada (NSERC)	
Ontario Graduate Scholarship	05/2022
IEEE INFOCOM 2022 Student Conference Grant	03/2022
Ontario Graduate Scholarship	05/2021
IEEE INFOCOM 2021 Student Conference Grant	03/2021
IEEE INFOCOM 2020 Student Travel Grant	07/2020
Ontario Graduate Scholarship	05/2020
School of Graduate Studies Student Travel Grant, UT	12/2019
Research Fellowship, UT	06/2018-05/2023
Research Fellowship, UA	09/2014-05/2017

	National champion for the Innovative Basketball Robot project	12/2012
	China Robot Competition and RoboCup China Open 2012	
	National champion for the Innovation project	05/2012
	China Serving Robot Competition 2012	
	National runner-up for the RoboCup at Home project	05/2012
	China Serving Robot Competition 2012	
	Academic Excellent Scholarship, SJTU	2010-2013
Reviewer:	IEEE Journal on Selected Areas in Communications	
	IEEE Transactions on Parallel and Distributed Systems	
	IEEE Transactions on Communications	
	IEEE Transactions on Wireless Communications	
	IEEE Transactions on Vehicular Technology	
	IEEE Transactions on Smart Grid	
	IEEE Transactions on Instrumentation and Measurement	
	Wireless Communications Letter	
	Physical Communication (Elsevier)	
Program Committee	ICDCS 2024	
Teaching:	COMP2037 Computing for Creatives II, HKBU	Fall 2023-2024
	COMP1015 Computing for Creatives I, HKBU	Fall 2023-2024
	COMP4057 Distributed and Cloud Computing, HKBU	Spring 2025
Teaching Assistant:	ECE355 Signal Analysis and Communications, UT	Fall 2022
	ECE421 Introduction to Machine Learning, UT	Spring 2021
	ECE355 Signal Analysis and Communications, UT	Fall 2021