

# Xin Liu

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<b>Contact Information</b>	<b>Address:</b> 2785 Windwood Dr, 173, Ann Arbor, MI 48105, USA <b>Website (Google Scholar):</b> <a href="https://liuxincell.github.io/">https://liuxincell.github.io/</a> <b>Email:</b> xinliuee@umich.edu <b>Phone:</b> (+1)4802770515
<b>Research Interests</b>	Stochastic modeling, analysis, and optimization; online learning and decision-making
<b>Current Appointment</b>	<b>Postdoctoral Research Fellow,</b> May 2020 – Present <b>University of Michigan,</b> Ann Arbor, Michigan Electrical Engineering and Computer Science Department Advisor: Prof. Lei Ying
<b>Education</b>	<b>Arizona State University,</b> Tempe, Arizona Ph.D. in Electrical Engineering, Aug. 2014 – Dec. 2019 Advisor: Prof. Lei Ying  <b>University of Chinese Academy of Sciences,</b> Beijing, China M.S. in Signal and Information Processing, Sept. 2011 – July 2014 Advisor: Prof. Haibing Wang  <b>Hunan University,</b> Changsha, Hunan B.E. in Electrical Engineering, Sept. 2007 – June 2011
<b>Honors and Awards</b>	INFOCOM paper invited for a fast review to the IEEE Transactions on Network Science and Engineering (7 out of 312 accepted papers), 2018 Best Student Paper at CHINACOM, 2013 Excellent Bachelor Thesis, Hunan University, 2011
<b>Preprint</b>	[P5] <b>Xin Liu</b> , Bin Li, Pengyi Shi, and Lei Ying. <i>An Efficient Pessimistic-Optimistic Algorithm for Constrained Linear Bandits</i> . ArXiv:2102.05295. (Under Review).  [P4] <b>Xin Liu</b> , Bin Li, Pengyi Shi, and Lei Ying. <i>POND: Pessimistic-Optimistic oNline Dispatch</i> . ArXiv:2010.09995.  [P3] Hairi, <b>Xin Liu</b> , and Lei Ying. <i>Beyond Scaling: Calculable Error Bounds of the Power-of-Two-Choices Mean-Field Model in Heavy-Traffic</i> . ArXiv:2012.06613. (Under Review).  [P2] <b>Xin Liu</b> , Kang Gong, and Lei Ying. <i>Steady-State Analysis of Load Balancing with Coxian-2 Distribution Service Times</i> . ArXiv:2005.09815. (Accepted in Naval Research Logistics).  [P1] <b>Xin Liu</b> and Lei Ying. <i>On Universal Scaling of Distributed Queues under Load Balancing</i> . ArXiv:1912.11904. (Review in IEEE/ACM Transactions on Networking).  <b>Journal Publications</b> [J6] Yiqiu Liu, <b>Xin Liu</b> , Lei Ying, and R. Srikant. <i>Wireless Scheduling with Deadline and Power Constraints</i> . Performance Evaluation. Mar., 2021.  [J5] <b>Xin Liu</b> and Lei Ying. <i>Steady-State Analysis of Load Balancing Algorithms in the Sub-Halfin-Whitt Regime</i> . Journal of Applied Probability. Apr., 2020.  [J4] Anton Braverman, Jim Dai, <b>Xin Liu</b> , and Lei Ying. <i>Empty-car routing in ridesharing systems</i> . Operations Research. Aug., 2019. <b>Media:</b> [TechXplore] [Informs Press].

[J3] **Xin Liu**, Weichang Wang, and Lei Ying. *Spatial-temporal Routing for Supporting End-to-end Hard Deadlines in Multi-hop Networks*. Performance Evaluation. July, 2019.

[J2] **Xin Liu** and Lei Ying. *On Achieving Zero delay with Power-of- $d$ -choices Load Balancing*. IEEE Transactions on Network Science and Engineering. Oct., 2018.

[J1] **Xin Liu**, Feifei Gao, Gongpu Wang, and Xiyuan Wang. *Joint Beamforming and User Selection in Multicast Downlink Channel under Secrecy-outage Constraint*. IEEE Communications Letters, Jan., 2014.

## Conference Publications

[C6] **Xin Liu** and Lei Ying. *A Simple Steady-State Analysis of Load Balancing Algorithms in the Sub-Halfin-Whitt Regime*. Mathematical Performance Modeling and Analysis Workshop (MAMA) in SIGMETRICS, Irvine, California, June, 2018.

[C5] **Xin Liu** and Lei Ying. *On Achieving Zero Delay with Power-of- $d$ -choices Load Balancing*. In Proc. IEEE International Conference on Computer Communications (INFOCOM), Honolulu, Hawaii, Apr., 2018. Fast-Track Review for IEEE Transactions on Network Science and Engineering (7 out of 312 accepted papers were invited).

[C4] Yiqiu Liu, **Xin Liu**, Lei Ying, and R. Srikant. *Wireless Scheduling with Deadline and Power Constraints*. 2018 Annual Conference on Information Science and Systems (CISS), Princeton, NJ, Mar., 2018.

[C3] Anton Braverman, Jim Dai, **Xin Liu**, and Lei Ying. *Fluid-model-based Car Routing for Modern Ridesharing Systems*. (Poster) SIGMETRICS, Urbana-Champaign, Illinois, June, 2017.

[C2] **Xin Liu** and Lei Ying. *Spatial-temporal Routing for Supporting End-to-end Hard Deadlines in Multi-hop Networks*. 2016 Annual Conference on Information Science and Systems (CISS), Princeton, NJ, Apr., 2016.

[C1] **Xin Liu**, Haoqi Li, and Haibin Wang. *Probability Constrained Robust Multicast Beamforming in Cognitive Radio Network*. 8th International Conference on Communications and Networking in China (CHINACOM), Guilin, Aug., 2013. (Best Student Paper).

## Selected Presentations

“Steady-State Analysis of Load Balancing Algorithms”

- ACM MobiHoc Frontiers Workshop, Virtual, Oct. 2020
- INFORMS Annual Meeting, Phoenix, Arizona, Nov. 2018
- Poster at NSF Cyber-Physical System Meeting, Alexandria, Virginia, Nov. 2018

“On Achieving Zero Delay with Power-of- $d$ -Choices Load Balancing”

- INFOCOM, Honolulu, Hawaii, Apr. 2018
- INFORMS Annual Meeting, Houston, Texas, Oct. 2017

“Fluid-Model-Based Car Routing for Modern Ridesharing Systems”

- Poster at SIGMETRICS, Urbana-Champaign, Illinois, June, 2017

## Industry Experience

Senior Algorithm Engineer in Cainiao AI, Hangzhou, China, Dec. 2019 – Jan. 2020  
Algorithm Engineer Intern in Cardinal Operations, Shanghai, China, Summer, 2018

**Professional  
Service**

Program Committee for MOBIHOC 2021, ITC 33, WiOpt 2021.

Reviewer for IEEE/ACM Transactions on Networking, Performance Evaluation, IEEE Transactions on Information Theory, IEEE Journal on Selected Areas in Communications, IEEE Communications Letters, INFOCOM, MOBIHOC, WiOpt.