Xin Liu

Contact Information

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Research Interests

Stochastic modeling, analysis, and optimization; online learning and decision-making

Current Appointment

Postdoctoral Research Fellow, May 2020 – Present
University of Michigan, Ann Arbor, Michigan
Electrical Engineering and Computer Science Department
Advisor: Prof. Lei Ying

Education

Arizona State University, Tempe, Arizona
Ph.D. in Electrical Engineering, Aug. 2014 – Dec. 2019
Advisor: Prof. Lei Ying

University of Chinese Academy of Sciences, Beijing, China
M.S. in Signal and Information Processing, Sept. 2011 – July 2014
Advisor: Prof. Haibing Wang

Hunan University, Changsha, Hunan
B.E. in Electrical Engineering, Sept. 2007 – June 2011

Honors and Awards

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

Preprint

Xin Liu, Bin Li, Pengyi Shi, and Lei Ying. *POND: Pessimistic-Optimistic oNline Dispatch.* ArXiv:2010.09995. (Under Review).

Hairi, **Xin Liu**, and Lei Ying. *Beyond Scaling: Calculable Error Bounds of the Power-of-Two-Choices Mean-Field Model in Heavy-Traffic.* (Under Review).

Xin Liu, Kang Gong, and Lei Ying. *Steady-State Analysis of Load Balancing with Coxian-2 Distribution Service Times.* ArXiv:2005.09815. (Second Round Review in Naval Research Logistics).

Xin Liu and Lei Ying. *On Universal Scaling of Distributed Queues under Load Balancing.* ArXiv:1912.11904. (Submitted to IEEE/ACM Transactions on Networking).

Journal Publications

Yiqiu Liu, **Xin Liu**, Lei Ying, and R. Srikant. *Wireless Scheduling with Deadline and Power Constraints.* To appear in Performance Evaluation.

Xin Liu and Lei Ying. *Steady-State Analysis of Load Balancing Algorithms in the Sub-Halfin-Whitt Regime.* Journal of Applied Probability. Apr., 2020.

Anton Braverman, Jim Dai, **Xin Liu**, and Lei Ying. *Empty-car routing in ridesharing systems.* Operations Research. Aug., 2019. **Media:** [TechXplore] [Informs Press].

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.

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

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

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 .

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).

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.

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.

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.

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

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.