Xiaohan Kang

Contact Information

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Research Interests

Bioinformatics, queueing theory, stochastic systems, resource allocation in data networks, game theory, information theory

Current Appointment

Postdoctoral Research Associate, Mar. 2016–present

University of Illinois at Urbana–Champaign, Urbana, Illinois
Coordinated Science Laboratory
Advisor: Prof. Bruce Hajek

Education

Arizona State University, Tempe, Arizona
Ph.D., Electrical Engineering, 2015
Advisor: Prof. Lei Ying

Iowa State University, Ames, Iowa
M.S., Electrical Engineering, 2012
Advisor: Prof. Lei Ying

Tsinghua University, Beijing, China
B.E., Electronic Engineering, 2009

Honors and Awards

Helmsley Fellowship, Frontiers and Techniques in Plant Science Course, Cold Spring Harbor Laboratory, 2019

INFOCOM Best Paper Award, 2015
Coauthors: Lei Ying and R. Srikant

The First Place Team, Cisco Intern Hackathon, 2015

University Graduate Fellowship, Arizona State University, 2014

Schafer 2050 Challenge Graduate Fellowship, Iowa State University, 2010

Journal Publications

J1. Xiaohan Kang, Juan José Jaramillo, Lei Ying, "Stability of longest-queue-first scheduling in linear wireless networks with multihop traffic and one-hop interference," *Queueing Systems*, vol. 80, no. 3, pp. 273–291, Jul. 2015. http://doi.org/10.1007/s11134-015-9441-2

J2. Xiaohan Kang, Weina Wang, Juan José Jaramillo, and Lei Ying, "On the performance of largest-deficit-first for scheduling real-time traffic in wireless networks," *IEEE/ACM Transactions on Networking*, vol. 24, pp. 72–84, Feb. 2016. https://doi.org/10.1109/TNET.2014.2360365

J3. Lei Ying, R. Srikant, and Xiaohan Kang, "The power of slightly more than one sample in randomized load balancing," *Mathematics of Operations Research*, vol. 42, no. 3, pp. 692–722, 2017. https://doi.org/10.1287/moor.2016.0823

J4. Xiaohan Kang, Bruce Hajek, Faqiang Wu, and Yoshie Hanzawa, "Time Series Experiment Design Under One-Shot Sampling: The Importance of Condition Diversity," *PLOS ONE*, vol. 14, no. 10, pp. e0224577, 2019. https://doi.org/10.1371/journal.pone.0224577

J5. Faqiang Wu, Xiaohan Kang, Minglei Wang, Waseem Haider, William B. Price, Bruce Hajek, and Yoshie Hanzawa, "Transcriptome-enabled network inference revealed the *GmCOL1* feed-forward loop and its roles in photoperiodic flowering of soybean" *Frontiers in Plant Science*, vol. 10, pp. 1221, 2019. https://doi.org/10.3389/fpls.2019.01221

J6. Xiaohan Kang, Bruce Hajek, and Yoshie Hanzawa, "From graph topology to ODE models for gene regulatory networks" *PLOS ONE*, vol. 15, no. 6, pp. e0235070, 2020. https://doi.org/10.1371%2Fjournal.pone.0235070

Conference Publications

C1. Xiaohan Kang, Juan José Jaramillo, "A strategy-proof and non-monetary admission control mechanism for wireless access networks," in *Proc. Int. Conf. Heterogeneous Networking for Quality, Reliability, Security and Robustness (QShine 2010)*, pp. 172–187, Houston, TX, Nov. 2010. https://doi.org/10.1007/978-3-642-29222-4_13

C2. Xiaohan Kang, Juan José Jaramillo, and Lei Ying, "Impacts of peer churn on P2P streaming networks," in *Proc. 50th Annu. Allerton Conf. Communication, Control and Computing (Allerton 2012)*, pp. 1417–1424, Monticello, IL, Oct. 2012. https://doi.org/10.1109/Allerton.2012.6483384

C3. Xiaohan Kang, Weina Wang, Juan José Jaramillo, and Lei Ying, "On the performance of largest-deficit-first for scheduling real-time traffic in wireless networks," in *Proc. 14th ACM Int. Symp. on Mobile Ad Hoc Networking and Computing (MobiHoc 2013)*, pp. 99–108, Bangalore, India, Jul.–Aug. 2013. https://doi.org/10.1145/2491288.2491298

C4. Xiaohan Kang, Juan José Jaramillo, and Lei Ying, "Stability of Longest-Queue-First Scheduling in Linear Wireless Networks with Multihop Traffic and One-Hop Interference," in *Proc. 52nd Annu. Conf. on Decision and Control (CDC 2013)*, pp. 3312–3317, Florence, Italy, Dec. 2013. https://doi.org/10.1109/CDC.2013.6760389

C5. Lei Ying, R. Srikant, and Xiaohan Kang, "The power of slightly more than one sample in randomized load balancing," in *Proc. IEEE Conf. on Computer Communications (INFOCOM 2015)*, pp. 1131–1139, Kowloon, Hong Kong, Apr.–May 2015. https://doi.org/10.1109/INFOCOM.2015.7218487
Best Paper Award

C6. Xiaohan Kang, I-Hong Hou, and Lei Ying, "On the capacity requirement of largest-deficit-first for scheduling real-time traffic in wireless networks," in *Proc. 16th ACM Int. Symp. Mobile Ad Hoc Networking and Computing (MobiHoc 2015)*, pp. 217–226, Hangzhou, China, Jun. 2015. https://doi.org/10.1145/2746285.2746302

C7. Honghao Wei, Xiaohan Kang, Weina Wang, and Lei Ying, "QuickStop: A Markov Optimal Stopping Approach for Quickest Misinformation Detection" in *Proc. ACM Meas. and Anal. Comput. Syst. (SIGMETRICS)*, 2019. https://doi.org/10.1145/3341617.3326156

C8. Xiaohan Kang and Bruce Hajek, "Lower Bounds on Information Requirements for Causal Network Inference" in *Proc. IEEE Int. Symp. Inform. Theor. (ISIT)*, 2021. https://doi.org/10.1109/ISIT45174.2021.9518005

Selected talks

T1. "On the performance of largest-deficit-first for scheduling real-time traffic in wireless networks," *MobiHoc*, Bangalore, India, Jul.–Aug. 2013

T2. "Stability of Longest-Queue-First Scheduling in Linear Wireless Networks with Multihop Traffic and One-Hop Interference," *CDC*, Florence, Italy, Dec. 2013

T3. "On the performance of largest-deficit-first for scheduling real-time traffic in wireless networks", *invited talk (hosted by Prof. Eytan Modiano)*, Massachusetts Institute of Technology, MA, Jun. 2015

T4. "The power of slightly more than one sample in randomized load balancing", *INFORMS Annual Meeting, invited talk*, Philadelphia, PA, Nov. 2015

T5. "The power of slightly more than one sample in randomized load balancing", *guest lecture (hosted by Prof. Rhonda Righter)*, IEOR Department, University of California at Berkeley, Berkeley, CA, Feb. 2016

T6. "The power of slightly more than one sample in randomized load balancing", *SINE Seminar, invited talk*, University of Illinois at Urbana–Champaign, Urbana, IL, Mar. 2016

T7. "CausNet: a causal inference algorithm for gene regulatory network reconstruction", *The Plant and Animal Genome XXVI Conference (PAG 2018)*, San Diego, CA, Jan. 2018

T8. "On the challenge of gene regulatory network reconstruction from high-throughput sequencing data", *Network Science Seminar Series, invited talk*, Arizona State University, Tempe, AZ, Apr. 2018

T9. "Time series experimental design under one-shot sampling: The importance of condition diversity" *Energy & Information Systems Seminar, invited talk*, Carnegie Mellon University, Pittsburgh, PA, Jun. 2019

T10. "Lower Bounds on Information Requirements for Causal Network Inference" *ISIT*, Melbourne, Australia (virtual), Jul. 2021

T11. "On modeling the circadian clock gene regulatory network in soybean" *Finding Your Inner Modeler Workshop IV (FYIM)*, Chicago, IL (virtual), Aug. 2021

T12. "Lower Bounds on Information Requirements for Causal Network Inference" *INFORMS Annual Meeting, invited talk*, Anaheim, CA, Oct. 2021

Teaching Experience

Instructor, ECE 313 (Probability with Engineering Applications) Section D (60+ students), University of Illinois at Urbana–Champaign, Fall 2017

Lab TA, EEE 455 (Communication Systems), Arizona State University, Spring 2015
Leads a session with 20+ students

Lab TA, EEE 455 (Communication Systems), Arizona State University, Fall 2014
Leads a session with 20+ students

Teaching Assistant, Cpr E 310 (Theoretical Foundations of Computer Engineering), Iowa State University, Fall 2009

Industry Experience

Internship in Data Center Core Software Group at Cisco Systems, Inc., San Jose, CA, Summer 2015

Professional Service

Exemplary Reviewer, IEEE Communications Letters, 2014

Reviewer for IEEE/ACM Transactions on Networking, Queueing Systems, IEEE Transactions on Mobile Computing, IEEE Communications Letters, IEEE Transactions on Vehicular Technology, IEEE Signal Processing Letters, IEEE Transactions on Network Science and Engineering

Technical Program Committee Member for ACM MobiHoc 2019–2021