Jia (Kevin) Liu

Contact Information

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Research Interests

- Optimization for Machine Learning, Federated/Decentralized Learning
- Online Learning, Multi-Armed Bandits, Reinforcement Learning
- Generalization and Model Compression in Machine Learning
- Stochastic Network Optimization and Control

Education

Ph.D. in Electrical and Computer Engineering, Feb. 2010
Virginia Tech, Blacksburg, VA

M.S. in Electrical Engineering, Mar. 1999
South China University of Technology, Guangzhou, Guangdong, P. R. China

B.S. in Electrical Engineering and Computer Science, Jul. 1996
South China University of Technology, Guangzhou, Guangdong, P. R. China

Employment in Academia and Industry

Assistant Professor, Dept. of Electrical and Computer Engineering, The Ohio State University, Aug. 2020 - Present
Research Areas: Machine Learning, Internet-of-Things, Cyber-Physical Systems (CPS), Data Analytics, Mobile Computing, Cloud Computing, Crowd-Sensing, Network Economy, Age-of-Information

Amazon Visiting Academics (AVA), Amazon Science, Nov. 2021 - Present
Research Areas: Machine Learning, Search, Recommender Systems

Affiliated Assistant Professor, Dept. of Computer Science, Iowa State University, Aug. 2020 - Present
Research Areas: Internet-of-Things, Machine Learning, Cyber-Physical Systems (CPS), Data Analytics, Mobile Computing, Cloud Computing, Software-Defined Networks, Network Economy

Assistant Professor, Dept. of Computer Science, Iowa State University, Aug. 2017 - Aug. 2020
Research Areas: Internet-of-Things, Machine Learning, Cyber-Physical Systems (CPS), Data Analytics, Mobile Computing, Cloud Computing, Software-Defined Networks, Network Economy

Research Assistant Professor, Dept. of Electrical and Computer Engineering, The Ohio State University, Nov. 2014 - Jul. 2017
Research Areas: Internet-of-Things (IoT), Cyber-Physical Systems (CPS), Data Analytics Infrastructure, Mobile Computing, Cloud Computing, Software-Defined Networks, Network Economy

Postdoctoral Researcher, Dept. of ECE, The Ohio State University, Apr. 2010 - Oct. 2014
Research Areas: Wireless Networks, Cloud Computing, Data Analytics, Smart Grid

Advisor: Prof. Ness B. Shroff

Member of Technical Staff, Bell Labs, Lucent Technologies, Mar. 1999 - Jan. 2003
Responsibility: Development of cdma2000-1x/1xEV-DO/1xEV-DV standards in China

Research Grants

Current (Total: $\sim$ $41.5M, Personal Share: $\sim$ $3.36M):

A) National Science Foundation (NSF)

1. **NSF CNS-1943226**, "CAREER: Computing-Aware Network Optimization for Efficient Distributed Data Analytics at the Wireless Edge," 10/012020 – 9/30/2025, $524,125 (**Sole PI**).

2. **NSF ECCS-1731649**, "SpecEES: Toward Spectral and Energy Efficient Cross-Layer Designs for Millimeter-Wave-Based Massive MIMO Networks," National Science Foundation (NSF), $549,999, 08/15/2017 – 07/31/2020 (**Lead PI**, Co-PI: John Volakis).

3. **NSF CCF-1618318**, "CIF: Small: Taming Convergence and Delay in Stochastic Network Optimization with Hessian Information," National Science Foundation (NSF), $317,896, 07/01/2016 – 06/30/2019, extended to 6/30/2020 (**Sole PI**).

4. **NSF CNS-1527078**, "NeTS: Small: Toward Optimal, Efficient, and Holistic Networking Design for Massive-MIMO Wireless Networks," National Science Foundation (NSF), $300,000, 10/01/2015 – 09/30/2018, extended to 09/30/2020 (**Sole PI**).

5. **NSF-CCF-1934884**, "HDR TRIPODS: D4 (Dependable Data-Driven Discovery) Institute," $1,500,000, Oct. 2019 – Sep. 2022 (Co-PI, Lead PI: Prof. Hridesh Rajan, My share: approximately $200,000).

6. **NSF-CNS-2130889**, "PAWR Platform ARA: Wireless Living Lab for Smart and Connected Rural Communities," $16,000,000, Jun. 2021 – May 2026 (Senior Personnel, Lead PI: Prof. Hongwei Zhang, My share: $93,789).

7. **NSF-CNS-2112471**, "AI Institute for Future Edge Networks and Distributed Intelligence (AI-EDGE)," $20,000,000, Oct. 2021 – Sept. 2026 (Senior Personnel, Lead PI: Prof. Ness Shroff, My share: approximately $400,000).

B) Department of Defense (DoD) Funding Agencies

8. **AFRL FA8750-18-1-0107**, "Taming Delay and Convergence Speed in Tactical Autonomous Swarms Network Optimization," Air Force Research Laboratory (AFRL), $500,000, 07/10/2018 – 01/01/2021 (**Sole PI**).

9. **ONR N000014-17-1-2417**, "Achieving Low Delay and Highly Adaptive Tactical Networking with Multi-Path TCP," Office of Naval Research (ONR), $1,050,000 (**ONR 6.2**, **Co-PI**, my share: $200,000, PI: Ness B. Shroff, 06/2017 – 05/2020).

10. **AFRL 2022 Visiting Faculty Research Program (VFRP) Award**, "Taming Sample, Communication, and Memory Complexities in Decentralized Learning over Tactical UAV Swarms," $15,000, 06/28/2022 – 08/19/2022 (**Sole PI**).

11. **AFRL 2022 Summer Extension Grant**, "Achieving Low Sample and Communication Complexities in Decentralized Bilevel Learning over Tactical UAV Swarms," $10,000, 10/03/2022 – 12/02/2022 (**Sole PI**).

12. **AFRL 2021 Visiting Faculty Research Program (VFRP) Award**, "Low Sample and Communication Complexities in Decentralized Data Analytics over Tactical UAV Swarms," $10,000, 05/10/2021 – 07/02/2021 (**Sole PI**).

13. **AFRL 2020 Visiting Faculty Research Program (VFRP) Award**, "Communication-Efficient Distributed Data Analytics over Tactical UAV Swarms," $10,000, 05/18/2020 – 07/10/2019 (**Sole PI**).

14. **AFRL 2019 Visiting Faculty Research Program (VFRP) Award**, "Optimal Energy Control for Autonomous Solar-Powered Long-Cruising Tactical UAV Swarms," $15,000, 06/10/2019 – 08/02/2019 (**Sole PI**).

15. **AFRL 2019 Summer Extension Grant**, "Optimal Energy Control for Autonomous Solar-Powered Long-Cruising Tactical UAV Swarms," $10,000, 08/02/2019 – 11/14/2019 (**Sole PI**).

16. **AFRL 2018 Summer Extension Grant**, "Taming Delay, Convergence Speed, and Energy Efficiency for AirborneWireless Networks," $10,000, 08/29/2018 – 10/31/2018 (**Sole PI**).

17. **AFRL 2018 Visiting Faculty Research Program (VFRP) Award**, "Efficient and Elastic Tactical Resource Allocation Optimization for Airborne Autonomous Swarms," $15,000, 07/02/2018 – 08/24/2018 (**Sole PI**).

18. **AFRL 2017 Research Grant**, "Momentum-Based Dynamic Resource Allocation for Unmanned Airborne Wireless Network Optimization," $10,000, 08/29/2017 – 10/31/2017 (**Sole PI**).

19. **AFOSR 2016 Summer Faculty Fellowship Program (SFFP) Award**, "Toward Optimal, Efficient, and Adaptive Resource Allocation Designs for Airborne Wireless Networks," $32,610, 05/23/2016 – 08/12/2016 (**Sole PI**).

20. **AFOSR 2016 Summer Faculty Fellowship Program (SFFP) Extension Grant**, "Toward Optimal, Efficient, and Adaptive Resource Allocation Designs for Airborne Wireless Networks," $40,000, 08/13/2016 – 10/31/2016 (**Sole PI**).

21. **AFRL 2015 Visiting Faculty Research Program (VFRP) Award**, "Dynamic Resource Allocation for Airborne Networks under Spectral, Spatial, and Temporal Uncertainty," $15,000, 06/22/2015 – 08/28/2015 (**Sole PI**).

22. **AFRL 2015 Summer Extension Grant**, "Dynamic Resource Allocation for Airborne Networks under Spectral, Spatial, and Temporal Uncertainty," $10,000, 08/29/2015 – 10/31/2015 (**Sole PI**).

C) Industrial Grants and Gifts

23. **Google Faculty Research Award 2020**, "Achieving Data Freshness with Selfish Users in Large-Scale Mobile Crowd-Sourcing," $33,917.

24. **Cisco Systems, Inc.**, "Low-Latency Computing Resource Scheduling and Allocation Algorithms for Distributed Deep Learning: A Spatial-Temporal Approach," Oct. 2022 – Sep. 2023, Amount: $200,000 (**Lead PI**, Co-PI: Ness Shroff).

D) Other Fundings (Senior Personnel)

25. **NSF-CNS-1556582**, "CPS: Synergy: Collaborative Research: Cognitive Green Building: A Holistic Cyber-Physical Analytic Paradigm for Energy Sustainability," Jan. 2015 – Dec. 2017 (Sinior Personnel, My share: $200K, PI: Prof. Ness B. Shroff, Co-PIs: Qian Chen, Thomas Hou, Wenjing Lou).

26. **NSF-ECCS-1232118**, "ECCS: Toward Efficient and Distributed Cyber-Physical Systems Design for the Smart Electric Power Grid," $300,000, Sept. 2012 – Sept. 2015 (Senior Personnel, PI: Cathy H. Xia, Co-PI: Prof. Ness B. Shroff, My share: approximately $100,000).

Awards and Honors

A) Best Paper Awards and Publication Honors

1. **IEEE INFOCOM 2019 Best Paper Award**: Fengjiao Li, Jia Liu, and Bo Ji, "Combinatorial Sleeping Bandits with Fairness Constraints," in *Proc. IEEE INFOCOM*, Paris, France, Apr. 29 - May 2, 2019 (also received an **INFOCOM Best-in-Session Presentation Award**, 1400+ submissions, acceptance rate 19.7%)

2. **IEEE INFOCOM 2016 Best Paper Award**: Jia Liu, Atilla Eryilmaz, Ness B. Shroff, and Elizabeth S. Bentley, "Heavy-Ball: A New Approach to Tame Delay and Convergence in Wireless Network Optimization," in *Proc. IEEE INFOCOM*, San Francisco, CA, Apr. 10-15, 2016 (1600+ submissions, acceptance rate 17%)

3. **IEEE INFOCOM 2013 Best Paper Runner-up Award**: Jia Liu, Cathy H. Xia, Ness B. Shroff, and Hanif D. Sherali, "Distributed Cross-Layer Optimization in Wireless Networks: A Second-Order Approach," in *Proc. IEEE INFOCOM 2013*, Turin, Italy, Apr. 14-19, 2013 (one best paper and two runner-ups were awarded out of 1600+ submissions, acceptance rate 17%)

4. **IEEE INFOCOM 2011 Best Paper Runner-up Award**: Yi Shi, Jia Liu, Canming Jiang, Cunhao Gao, and Y. Thomas Hou, "An Optimal Link Layer Model for Multi-hop MIMO Networks," in *Proc. IEEE INFOCOM 2011*, Shanghai, China, Apr. 10 - 15, 2011 (one best paper and one runner-up were awarded out of 1800+ submissions, acceptance rate 15%)

5. **IEEE ICC 2008 Best Paper Award**: Jia Liu, Y. Thomas Hou, and Hanif D. Sherali, "Cross-Layer Optimization for MIMO-Based Mesh Networks with Dirty Paper Coding," in *Proc. IEEE ICC 2008*, Beijing, China, May 19 - 23, 2008

6. **ICML 2022 Long Oral Presentation**: Haibo Yang, Xin Zhang, Prashant Khanduri, and Jia Liu, "Anarchic Federated Learning," in *Proc. ICML*, Baltimore, MD, July. 2022 (5630 submissions, acceptance rate 21.9%, long presentation rate: 2%)

7. **ICLR 2022 Spotlight Presentation**: Hairi FNU, Jia Liu, and Songtao Lu "Finite-Time Convergence and Sample Complexity of Multi-Agent Actor-Critic Reinforcement Learning with Average Reward," in *Proc. ICLR*, Virtual Event, Apr. 2022 (3391 submissions, acceptance rate 32%, spotlight rate: 5%)

8. **NeurIPS 2020 Spotlight Presentation**: Peizhong Ju, Xiaojun Lin, and Jia Liu, "Overfitting Can Be Harmless for Basis Pursuit, But Only to a Degree," in *Proc. NeurIPS*, Vancouver, Canada, Dec. 2020 (9454 submissions, acceptance rate 20%, spotlight rate: 3%)

9. **Winner of 2022 AFRL/RI and Griffiss Institute (GI) Poster Competition among Summer Visiting Faculty**: Low Sample and Communication Complexities in Decentralized Learning: A Triple Hybrid Approach

B) Major Awards and Honors

1. **National Science Foundation (NSF) CAREER Award, 2020**
2. **Google Faculty Research Award, 2020**
3. **Amazon Visiting Academics (AVA), 2021**
4. **LAS Award for Early Achievement in Research, 2020**, the College of Liberal Arts and Sciences, Iowa State University
5. **Air Force Office of Scientific and Research Summer Faculty Fellowship, 2016**
6. **Joint Keynote Speaker, 05/2018**, joint EFC-IoT/RAWNET workshop, Shanghai, China
7. Co-recipient of **Bell Labs President Gold Award**, Bell Labs, 2001
8. Paul E. Torgersen Research Competition Finalist, Virginia Tech, 2009

Teaching Experience

The Ohio State University
Fall 2022: ECE 3561: *Advanced Digital Design*
Spring 2022: ECE 8101: *Non-Convex Optimization for Machine Learning*
Fall 2021: ECE 3561: *Advanced Digital Design*
Spring 2021: ECE 3561: *Advanced Digital Design*
Fall 2014: Introduction to Computer and Communication Networks (Guest lecture)

Iowa State University
Fall 2017: COMS 672: *Advanced Topics in Computational Models of Learning – Optimization for Machine Learning*
Spring 2018: COMS 311: *Design and Analysis of Algorithms*
Fall 2018: COMS 578X: *Optimization for Machine Learning*
Spring 2019: COMS 311: *Design and Analysis of Algorithms*
Fall 2019: COMS 578X: *Optimization for Machine Learning*
Spring 2020: COMS 311: *Design and Analysis of Algorithms*

Virginia Tech
Spring 2005: Introduction to Telecommunication Networks (Teaching Assistant: Giving lectures, grading assignments and exams)

Publications

(Note: Underlined are students or PostDocs that I supervise. "*" marks co-primary authors)

Refereed Journal Articles

J1 Xin Zhang, **Jia Liu**, and Zhengyuan Zhu, "Learning Coefficient Heterogeneity over Networks: A Distributed Spanning-Tree-Based Fused-Lasso Regression," **Journal of the American Statistical Association (JASA)**, accepted in Sept. 2022, to appear.

J2 Menglu Yu, **Jia Liu**, Chuan Wu, Bo Ji, and Elizabeth S. Bentley, "Toward Efficient Online Scheduling for Distributed Machine Learning Systems," **IEEE Transactions on Network Science and Engineering**, vol. 9, no. 4, pp. 1951-1969, Jul.-Aug. 2022.

J3 Hongsen Shi*, **Jia Liu***, and Qian Chen, "An RC-Network Approach for HVAC Precooling Optimization in Green Buildings," **IEEE Transactions on Sustainable Computing**, vol. 7, no. 3, pp. 512-526, Jul.-Sep. 2022 (*Co-primary authors, corresponding author).

J4 Bin Li* and **Jia Liu***, "Achieving Information Freshness with Selfish and Rational Users in Mobile Crowd-Learning," **IEEE Journal on Selected Areas in Communications (JSAC)**, vol. 39, no. 5, pp. 1266-1276, May 2021 (*Co-primary authors).

J5 Kuangyu Zheng, Xiaorui Wang, and **Jia Liu**, "Distributed Traffic Flow Consolidation for Power Efficiency of Large-Scale Data Center Networks," **IEEE Transactions on Cloud Computing**, accepted, to appear.

J6 Fengjiao Li, **Jia Liu**, and Bo Ji, "Combinatorial Sleeping Bandits with Fairness Constraints," **IEEE Transactions on Network Science and Engineering**, vol. 7, no. 3, pp. 1799-1813, Jul. 2020.

J7 Bin Li, **Jia Liu**, and Bo Ji, "Low-Overhead Wireless Uplink Scheduling for Large-Scale Internet-of-Things," **IEEE Transactions on Mobile Computing**, vol. 20, no. 2, pp. 577-587, Feb. 2021.

J8 **Jia Liu** and Elizabeth S. Bentley, "Hybrid-Beamforming-Based Millimeter-Wave Cellular Network Optimization," **IEEE Journal on Selected Areas in Communications (JSAC)**, vol. 37, no. 12, pp. 2799-2813, Dec. 2019.

J9 **Jia Liu** and Elizabeth S. Bentley, "Hybrid-Beamforming-Based Millimeter-Wave Cellular Network Optimization," *Special Issue on Millimeter-Wave Networking*, **IEEE Journal on Selected Areas in Communications (JSAC)** (Accepted with revision).

J10 Bin Li, **Jia Liu**, and Bo Ji, "Low-Overhead Wireless Uplink Scheduling for Large-Scale Internet-of-Things," **IEEE Transactions on Mobile Computing**, (under second-round review, minor revisions).

J11 **Jia Liu**, Atilla Eryilmaz, Ness B. Shroff, and Elizabeth S. Bentley, "Understanding the Impacts of Limited Channel State Information on Massive MIMO Cellular Network Optimization," **IEEE Journal on Selected Areas in Communications (JSAC)**, vol. 35, no. 8, pp. 1715-1727, Aug. 2017.

J12 **Jia Liu**, Ness B. Shroff, Cathy H. Xia, and Hanif D. Sherali, "Joint Congestion Control and Routing Optimization: An Efficient Second-Order Distributed Approach," **IEEE/ACM Transaction on Networking**, vol. 24, no. 3, pp.1404-1420, Jun. 2016.

J13 **Jia Liu**, Tianyou Kou, Qian Chen, and Hanif D. Sherali, "On Wireless Network Infrastructure Optimization for Cyber-Physical Systems in Future Smart Buildings," **International Journal on Sensor Networks**, special issue on Internet of Things (IoT), vol. 18, no. 3-4, pp. 148-160, 2015.

J14 Yi Shi, **Jia Liu**, Canming Jiang, Cunhao Gao, and Y. Thomas Hou, "A DoF-Based Link Layer Model for Multi-Hop MIMO Networks," **IEEE Transactions on Mobile Computing**, vol. 13, no. 7, pp. 1395-1408, Jul. 2014.

J15 **Jia Liu**, Cathy H. Xia, Ness B. Shroff, and Xiaodong Zhang, "On Distributed Computation Rate Optimization for Deploying Cloud Computing Programming Frameworks," **ACM SIGMETRICS Performance Evaluation Review** (PER), vol. 40, no. 4, pp. 63-72, Mar. 2013.

J16 Yi Shi, Y. Thomas Hou, **Jia Liu**, and Sastry Kompella, "Bridging the Gap between Protocol and Physical Models for Wireless Networks," **IEEE Transactions on Mobile Computing**, vol. 12, no. 7, pp. 1404-1416, Jul. 2013.

J17 **Jia Liu**, Ness B. Shroff, and Hanif D. Sherali, "Optimal Power Allocation in Multi-Relay MIMO Cooperative Networks: Theory and Algorithms," **IEEE Journal on Selected Areas in Communications** (JSAC), vol. 30, no. 2, pp. 331-340, Feb. 2012.

J18 **Jia Liu**, Tianyou Kou, Qian Chen, and Hanif D. Sherali, "Femtocell Base Station Placement in Commercial Buildings: A Global Optimization Approach," **IEEE Journal on Selected Areas in Communications (JSAC)**, vol. 30, no. 3, pp. 652-663, Apr. 2012.

J19 Sushant Sharma, Yi Shi, **Jia Liu**, Y. Thomas Hou, and Sastry Kompella, "Network Coding in Cooperative Communications: Friend or Foe?" **IEEE Transactions on Mobile Computing**, vol. 11, no. 7, pp. 1073-1085, Jul. 2012.

J20 Hui Li, Lingying Zhao, Peter Ling, and **Jia Liu**, "A Model for Predicting Wireless Signal Transmission Performance of ZigBee-Based Sensor Networks in Residential Houses," **ASHRAE Transactions**, vol. 118, no. 1, pp. 994-1007, Jan. 2012.

J21 **Jia Liu**, Y. Thomas Hou, Yi Shi, and Hanif D. Sherali, "Cross-Layer Optimization on Routing and Power Control of MIMO Ad Hoc Networks: Routing, Power Allocation, and Bandwidth Allocation," **IEEE Journal on Selected Areas in Communications (JSAC)**, vol. 26, no. 6, pp. 913-926, Aug. 2008.

J22 **Jia Liu**, Y. Thomas Hou, Yi Shi, and Hanif D. Sherali, "On the Capacity of Multiuser MIMO Networks with Interference," **IEEE Transaction on Wireless Communications**, vol. 7, no. 2, pp. 488 - 494, Feb. 2008.

Refereed Conference Papers

C1 Peiwen Qiu, Yining Li, Zhuqing Liu, Prashant Khanduri, **Jia Liu**, Ness B. Shroff, Elizabeth S. Bentley, and Kurt Turck,"DIAMOND: Taming Sample and Communication Complexities in Decentralized Bilevel Optimization," in Proc. Proc. **IEEE INFOCOM**, New York City, NY, May 2023 (acceptance rate: 19.2%).

C2 Haibo Yang, Peiwen Qiu, Prashant Khanduri, and Jia Liu,"With a Little Help from My Friend: Server-Aided Federated Learning with Partial Client Participation," in Proc. NeurIPS Workshop on Federated Learning: Recent Advances and New Challenges, (**FL-NeurIPS'22**), New Orleans, LA, Dec. 2022.

C3 Minghong Fang, **Jia Liu**, Neil Gong, and Elizabeth S. Bentley, "AFLGuard: Byzantine-robust Asynchronous Federated Learning," in Proc. **ACM ACSAC**, Austin, TX, Dec. 2022 (acceptance rate: 24.1%).

C4 Haibo Yang, Peiwen Qiu, and **Jia Liu**, "Taming Fat-Tailed ("Heavier-Tailed" with Potentially Infinite Variance) Noise in Federated Learning," in Proc. **NeurIPS**, New Orleans, LA, Dec. 2022 (acceptance rate: 25.6%).

C5 Haibo Yang, Zhuqing Liu, Xin Zhang, and **Jia Liu**, "SAGDA: Achieving $\mathcal{O}(\epsilon^{-2})$ Communication Complexity in Federated Min-Max Learning," in Proc. **NeurIPS**, New Orleans, LA, Dec. 2022 (acceptance rate: 25.6%).

C6 Songtao Lu, Siliang Zeng, Xiaodong Cui, Mark S. Squillante, Lior Horesh, Brian Kingsbury, **Jia Liu**, Mingyi Hong, "A Stochastic Linearized Augmented Lagrangian Method for Decentralized Bilevel Optimization," in Proc. **NeurIPS**, New Orleans, LA, Dec. 2022 (acceptance rate: 25.6%).

C7 Menglu Yu, Bo Ji, Hridesh Rajan, and **Jia Liu**, "On Scheduling Ring-All-Reduce Learning Jobs in Multi-Tenant GPU Clusters with Communication Contention," in Proc. **ACM MobiHoc**, Seoul, South Korea, Oct. 2022 (acceptance rate: 19.8%).

C8 Zhuqing Liu, Xin Zhang, Prashant Khanduri, Songtao Lu, and **Jia Liu**, "On Scheduling Ring-All-Reduce Learning Jobs in Multi-Tenant GPU Clusters with Communication Contention," in Proc. **ACM MobiHoc**, Seoul, South Korea, Oct. 2022 (acceptance rate: 19.8%).

C9 Zhuqing Liu, Xin Zhang, and **Jia Liu**, "SYNTHESIS: A Semi-Asynchronous Path-Integrated Stochastic Gradient Method for Distributed Learning in Computing Clusters," in Proc. **ACM MobiHoc**, Seoul, South Korea, Oct. 2022 (acceptance rate: 19.8%).

C10 Xin Zhang, Minghong Fang, Zhuqing Liu, Haibo Yang, **Jia Liu**, and Zhengyuan Zhu, "NET-FLEET: Achieving Linear Convergence Speedup for Fully Decentralized Federated Learning with Heterogeneous Data," in Proc. **ACM MobiHoc**, Seoul, South Korea, Oct. 2022 (acceptance rate: 19.8%).

C11 Jinmiao Fu, Shaoyuan Xu, Huidong Liu, Yang Liu, Ning Xie, Chien-Chih Wang, Bryan Wang, **Jia Liu**, and Yi Sun, "CMA-CLIP: Cross-Modality Attention CLIP for Text-Image Classification," in Proc. **IEEE ICIP**, Bordeaux, France, Oct. 2022.

C12 Haibo Yang, Xin Zhang, Prashant Khanduri, and **Jia Liu**, "Anarchic Federated Learning," in Proc. **ICML**, Baltimore, MD, Jul. 2022 (**Long Presentation**, long presentation rate: 2%, acceptance rate: 21.9%).

C13 Michinari Momma, Chaosheng Dong, and **Jia Liu**, "A Multi-Objective / Multi-Task Learning Framework Induced by Pareto Stationarity," in Proc. **ICML**, Baltimore, MD, Jul. 2022 (acceptance rate: 21.9%).

C14 Jiayu Mao* Haibo Yang*, Peiwen Qiu, **Jia Liu**, and Aylin Yener, "CHARLES: Channel-Quality-Adaptive Over-the-Air Federated Learning over Wireless Networks," in Proc. **IEEE SPAWC**, Oulu, Finland, June 2022.

C15 Haibo Yang, Peiwen Qiu, **Jia Liu**, and Aylin Yener, "Over-The-Air Federated Learning With Joint Adaptive Computation and Power Control," in Proc. **IEEE ISIT**, Espoo, Finland, June 2022.

C16 Minghong Fang, **Jia Liu**, Michinari Momma, and Yi Sun, "FairRoad: Achieving Fairness for Recommender Systems with Optimized Antidote Data," in Proc. **ACM SACMAT**, Virtual Event, Jun. 2022.

C17 Fan Yang, Alireza Bagheri Garakani, Yifei Teng, Yan Gao, **Jia Liu**, Jingyuan Deng, and Yi Sun, "Spelling Correction Phonetics in E-Commerce Search," in Proc. of the 5th Workshop on e-Commerce and NLP at the 60th Annual Meeting of the Association for Computational Linguistics (**ECNLP-ACL**), Dublin, Ireland, May 2022.

C18 Hairi FNU, **Jia Liu**, and Songtao Lu, "Finite-Time Convergence and Sample Complexity of Multi-Agent Actor-Critic Reinforcement Learning with Average Reward," in Proc. **ICLR**, Virtual Event, Apr. 2022 (**Spotlight Presentation**, acceptance rate: 32%, spotlight rate: 5%).

C19 Prashant Khanduri, Haibo Yang, Mingyi Hong, **Jia Liu**, Hoi To Wai, and Sijia Liu, "Decentralized Learning for Overparameterized Problems: A Multi-Agent Kernel Approximation Approach," in Proc. **ICLR**, Virtual Event, Apr. 2022 (acceptance rate: 32%).

C20 Tianchen Zhou, **Jia Liu**, Chaosheng Dong, and Yi Sun, "Bandit Learning with Joint Effect of Incentivized Sampling, Delayed Sampling Feedback, and Self-Reinforcing User Preferences," submitted to **ICLR**, Virtual Event, Apr. 2022 (acceptance rate: 32%).

C21 Tianxiang Gao, Hailiang Liu, **Jia Liu**, Hridesh Rajan, and Hongyang Gao, "A Global Convergence Theory for Deep ReLU Implicit Networks via Over-parameterization," submitted to **ICLR**, Virtual Event, Apr. 2022 (acceptance rate: 32%).

C22 Menglu Yu, Ye Tian, Bo Ji, Chuan Wu, Hridesh Rajan, and **Jia Liu**, "GADGET: Online Resource Optimization for Scheduling Ring-All-Reduce Learning Jobs," in Proc. **IEEE INFOCOM**, Virtual Event, May 2022 (acceptance rate: 19.9%).

C23 Xin Zhang, Zhuqing Liu, **Jia Liu**, Zhengyuan Zhu, Songtao Lu, "Taming Communication and Sample Complexities in Decentralized Policy Evaluation for Cooperative Multi-Agent Reinforcement Learning," in Proc. **NeurIPS**, Virtual Event, Dec. 2021 (acceptance rate: 26%).

C24 Prashant Khanduri, Pranay Sharma, Haibo Yang, Mingyi Hong, **Jia Liu**, Ketan Rajawat, Pramod Varshney, "STEM: A Stochastic Two-Sided Momentum Algorithm Achieving Near-Optimal Sample and Communication Complexities for Federated Learning," in Proc. **NeurIPS**, Virtual Event, Dec. 2021 (acceptance rate: 26%).

C25 Wenbo Ren, **Jia Liu**, and Ness B. Shroff, "Sample Complexity Bounds for Active Ranking from Multi-wise Comparisons," in Proc. **NeurIPS**, Virtual Event, Dec. 2021 (acceptance rate: 26%).

C26 Hongwei Zhang, Yong Guan, Ahmed Kamal, Daji Qiao, Mai Zheng, Anish Arora, Ozdal Boyraz, Brian Cox, Thomas Daniels, Matthew Darr, Doug Jacobson, Ashfaq Khokhar, Sang Kim, James Koltes, **Jia Liu**, Mike Luby, Larysa Nadolny, Joshua Peschel, Patrick Schnable, Anuj Sharma, Arun Somani, and Lie Tang, "ARA: A Wireless Living Lab Vision for Smart and Connected Rural Communities," n Proc. Workshop on Wireless Network Testbeds, Experimental Evaluation & Characterization (**ACM WiNTECH**), Virtual Event, Oct. 2021.

C27 Haibo Yang, **Jia Liu**, and Elizabeth S. Bentley, "CFedAvg: Achieving Efficient Communication and Fast Convergence in Non-IID Federated Learning," in Proc. **IEEE/IFIP WiOpt**, Philadelphia, PA, Oct. 2021.

C28 Prashant Khanduri, Pranay Sharma, Haibo Yang, Mingyi Hong, **Jia Liu**, Ketan Rajawat and Pramod K. Varshney, "Achieving Optimal Sample and Communication Complexities for Non-IID Federated Learning," in *Proc. ICML Workshop on Federated Learning for User Privacy and Data Confidentiality* (**FL-ICML'21**), Virtual Event, Jul. 2021.

C29 Fengjiao Li, **Jia Liu**, and Bo Ji, "Federated Learning with Fair Worker Selection: A Multi-Round Submodular Maximization Approach," in Proc. **IEEE MASS**, Virtual Event, Oct. 2021 (acceptance rate: 28.3%).

C30 Tianchen Zhou, **Jia Liu**, Chaosheng Dong, and Jingyuan Deng, "Incentivized Bandit Learning with Self-Reinforcing User Preferences," in Proc. **ICML**, Virtual Event, Jul. 2021 (acceptance rate: 20.4%).

C31 Xin Zhang, **Jia Liu**, Zhengyuan Zhu, and Elizabeth S. Bentley, "GT-STORM: Taming Sample, Communication, and Memory Complexities in Decentralized Non-Convex Learning," in Proc. **ACM MobiHoc**, Shanghai, China, Jul. 2021 (acceptance rate: 20.1%).

C32 Tianxiang Gao, Songtao Lu, **Jia Liu**, and Chris Chu, "On the Convergence of Randomized Bregman Coordinate Descent for Non-Lipschtiz Composite Problems," in Proc. **IEEE ICASSP**, Virtual Event, Jun. 2021.

C33 Minghong Fang, Minghao Sun, Qi Li, Neil Zhenqiang Gong, Jin Tian, and **Jia Liu**, "Data Poisoning Attacks and Defenses to Crowdsourcing Systems," in Proc. **ACM WWW (TheWebConf)**, Virtual Event, Apr. 2021 (acceptance rate: 20.6%).

C34 Haibo Yang, Minghong Fang, and **Jia Liu**, "Achieving Linear Speedup with Partial Worker Participation in Non-IID Federated Learning," in Proc. **ICLR**, Virtual Event, May 2021 (acceptance rate: 28.6%).

C35 Wenbo Ren, **Jia Liu**, and Ness B. Shroff, "On Logarithmic Regret for Bandits with Knapsacks," in Proc. **IEEE CISS**, Virtual Event, Mar. 2021 (**Invited Paper**).

C36 Xiaoyu Cao*, Minghong Fang*, **Jia Liu**, and Neil Zhenqiang Gong, "FLTrust: Byzantine-robust Federated Learning via Trust Bootstrapping," in Proc. **NDSS**, Virtual Event, Feb 2021 (*co-primary authors, acceptance rate: 16%).

C37 Xin Zhang, **Jia Liu**, Zhengyuan Zhu, Elizabeth S. Bentley, "Low Sample and Communication Complexities in Decentralized Learning: A Triple Hybrid Approach," in Proc. **IEEE INFOCOM**, Virtual Event, May 2021 (acceptance rate: 19.9%).

C38 Menglu Yu, Chuan Wu, Bo Ji, and **Jia Liu**, "A Sum-of-Ratios Multi-Dimensional-Knapsack Decomposition for DNN Resource Scheduling," in Proc. **IEEE INFOCOM**, Virtual Event, May. 2021 (acceptance rate: 19.9%).

C39 Peizhong Ju, Xiaojun Lin, and **Jia Liu**, "Overfitting Can Be Harmless for Basis Pursuit, But Only to a Degree," in Proc. **NeurIPS**, Vancouver, CA, Dec. 2020 (**Spotlight Presentation**, acceptance rate: 20%, spotlight rate: 3%).

C40 Xin Zhang, **Jia Liu**, and Zhengyuan Zhu, "Taming Convergence for Asynchronous Stochastic Gradient Descent with Unbounded Delay in Non-Convex Learning," in Proc. **IEEE CDC**, Jeju Island, Korea, Dec. 2020.

C41 Wenbo Ren, **Jia Liu**, and Ness B. Shroff, "The Sample Complexity of Best-k Items Selection from Pairwise Comparisons," in Proc. **ICML**, Vienna, Austria, July 2020 (acceptance rate: 21.8%).

C42 Haibo Yang, Xin Zhang, Minghong Fang, and **Jia Liu**, "Adaptive Multi-Hierarchical signSGD for Communication-Efficient Distributed Optimization," in Proc. **IEEE SPAWC**, **Special Session on Distributed Signal Processing for Coding and Communications**, Atlanta, GA, May 2020 (**Invited Paper**).

C43 Ye Tian, **Jia Liu**, and Cathy Xia, "MATE: A Memory-Augmented Time-Expansion Approach for Optimal Trip-Vehicle Matching and Routing in Ride-Sharing," in Proc. **ACM e-Energy**, Melbourne, Jun. 2020 (acceptance rate: 23%).

C44 Xin Zhang, Minghong Fang, **Jia Liu**, and Zhengyuan Zhu, "Private and Communication-Efficient Edge Learning: A Sparse Differential Gaussian-Masking Distributed SGD Approach," in Proc. **ACM MobiHoc**, Shanghai, China, Oct. 2020 (acceptance rate: 15%).

C45 Zhengxiong Yuan, Bin Li, and **Jia Liu**, "Can We Improve Information Freshness with Predictions in Mobile Crowd-Learning?" in *Proc. the 3rd Age of Information Workshop*, **IEEE INFOCOM**, Toronto, Canada, Jul. 2020.

C46 Minghong Fang and **Jia Liu**, "Toward Low-Cost and Stable Blockchain Networks," in Proc. **IEEE ICC**, Dublin, Ireland, Jun. 2020.

C47 Minghong Fang, Neil Zhenqiang Gong, and **Jia Liu**, "Influence Function Based Data Poisoning Attacks to Top-N Recommender Systems," in Proc. **ACM WWW**, Taipei, Taiwan, Apr. 2020 (acceptance rate: 25%).

C48 Xuxi Yang, Lisen Deng, **Jia Liu**, Peng Wei, Husheng Li, "Multi-Agent Autonomous Operations in Urban Air Mobility with Communication Constraints," in Proc. **AIAA SciTech**, Orlando, Florida, Jan. 2020.

C49 Xin Zhang, **Jia Liu**, Zhengyuan Zhu, and Elizabeth Bentley, "Communication-Efficient Network-Distributed Optimization with Differential-Coded Compressors," in Proc. **IEEE INFOCOM**, Toronto, Canada, Jul. 2020 (acceptance rate: 19.8%).

C50 Zhida Qin, Xiaoying Gan, **Jia Liu**, Hongqiu Wu, Haimin Jin, and Luoyi Fu, "Exploring Best Arm with Top Reward-Cost Ratio in Stochastic Bandits," in Proc. **IEEE INFOCOM**, Toronto, Canada, Jul. 2020 (acceptance rate: 19.8%).

C51 Wenbo Ren, **Jia Liu**, and Ness B. Shroff, "On Sample Complexity Upper and Lower Bounds for Exact Ranking from Noisy Comparisons," in Proc. **NeurIPS**, Vancouver, Canada, Dec. 2019 (acceptance rate: 21%).

C52 Haibo Yang, Xin Zhang, Minghong Fang, and **Jia Liu***, "Byzantine-Resilient Stochastic Gradient Descent for Distributed Learning: A Lipschitz-Inspired Coordinate-wise Median Approach," in Proc. **IEEE CDC**, Nice, France, Dec. 2019.

C53 Bin Li and **Jia Liu***, "Can We Achieve Fresh Information with Selfish Users in Mobile Crowd-Learning?" in Proc. **IEEE/IFIP WiOpt**, Avignon, France, Jun. 2019 (*Co-primary authors, acceptance rate: 42%).

C54 Xin Zhang, **Jia Liu**, Zhengyuan Zhu, and Elizabeth Bentley, "Compressed Distributed Gradient Descent: Communication-Efficient Consensus over Networks," in Proc. **IEEE INFOCOM**, Paris, France, Apr. 2019 (acceptance rate: 19.7%).

C55 Fengjiao Li, Bo Ji, and **Jia Liu**, "Combinatorial Sleeping Bandits with Fairness Constraints," in Proc. **IEEE INFOCOM**, Paris, France, Apr. 2019 (**Best Paper Award**, acceptance rate: 19.7%).

C56 Wenbo Ren, **Jia Liu**, Ness B. Shroff, "Exploring k out of Top ρ Fraction of Arms in Stochastic Bandits," in Proc. **AISTATS**, Naha, Okinawa, Japan, Apr. 2019 (acceptance rate: 31.7%).

C57 Minghong Fang, Guolei Yang, Neil Zhenqiang Gong, and **Jia Liu**, "Poisoning Attacks to Graph-Based Recommender Systems," in Proc. **ACM ACSAC**, San Juan, Puerto Rico, Dec. 2018 (acceptance rate: 20.1%).

C58 Hongsen Shi, **Jia Liu**, and Qian Chen, "HVAC Precooling Optimization for Green Buildings: An RC-Network Approach," in Proc. **ACM e-Energy**, Karlsruhe, Germany, Jun. 2018 (acceptance rate: 21.9%).

C59 Bin Li, Bo Ji, and **Jia Liu**, "Efficient and Low-Overhead Uplink Scheduling for Large-Scale Wireless Internet-of-Things," in Proc. **IEEE WiOpt**, Shanghai, China, May 2018 (acceptance rate: 30%).

C60 **Jia Liu**, "High-Order Momentum: Improving Latency and Convergence for Wireless Network Optimization," in Proc. **IEEE INFOCOM**, Honolulu, HI, Apr. 15-19, 2018 (acceptance rate: 19%).

C61 **Jia Liu** and Elizabeth S. Bentley, "Hybrid-Beamforming-Based Millimeter-Wave Cellular Network Optimization," in Proc. **IEEE WiOpt**, Paris, France, May. 15-19, 2017 (acceptance rate: 33%).

C62 Kuangyu Zheng, Xiaorui Wang, and **Jia Liu**, "DISCO: Distributed Traffic Flow Consolidation for Power Efficient Data Center Network," in Proc. **IFIP Networking**, Stockholm, Sweden, Jun. 12-15, 2017 (acceptance rate: 28%).

C63 **Jia Liu**, Atilla Eryilmaz, Ness B. Shroff, and Elizabeth S. Bentley, "Heavy-Ball: A New Approach to Tame Delay and Convergence in Wireless Network Optimization," in Proc. **IEEE INFOCOM**, San Francisco, CA, Apr. 10-15, 2016 (**Best Paper Award**, acceptance rate: 17%).

C64 **Jia Liu**, "Achieving Low-Delay and Fast-Convergence in Stochastic Network Optimization: A Nesterovian Approach," in Proc. **ACM SIGMETRICS**, Antibes Juan-les-Pins, France, Jun. 14-18, 2016 (acceptance rate: 13%).

C65 **Jia Liu**, Atilla Eryilmaz, Ness B. Shroff, and Elizabeth S. Bentley, "Understanding the Impact of Limited Channel State Information on Massive MIMO Network Performances," in Proc. **ACM MobiHoc**, Paderborn, Germany, Jul. 5-8, 2016 (acceptance rate: 17%).

C66 **Jia Liu**, Cathy H. Xia, Ness B. Shroff, and Hanif D. Sherali, "Distributed Optimal Load Shedding for Disaster Recovery in Smart Electric Power Grids: A Second-Order Approach," in Proc. **ACM SIGMETRICS**, Austin, TX, Jun. 16-20, 2014.

C67 **Jia Liu**, Cathy H. Xia, Ness B. Shroff, and Hanif D. Sherali, "Distributed Cross-Layer Optimization in Wireless Networks: A Second-Order Approach," in Proc. **IEEE INFOCOM 2013**, Turin, Italy, Apr. 14-19, 2013 (**Best Paper Runner-up Award**, acceptance rate: 17%).

C68 **Jia Liu** and Hanif D. Sherali, "A Distributed Newton's Method for Joint Multi-Hop Routing and Flow Control: Theory and Algorithm," in Proc. **IEEE INFOCOM**, Orlando, FL, Mar. 25 - 30, 2012 (acceptance rate: 18%).

C69 **Jia Liu**, Qian Chen, and Hanif D. Sherali, "Algorithm Design for Femtocell Base Station Placement in Commercial Building Environments," in Proc. **IEEE INFOCOM**, Orlando, FL, Mar. 25 - 30, 2012 (acceptance rate: 18%).

C70 **Jia Liu**, Tianyou Kou, Qian Chen, and Hanif D. Sherali, "On Wireless Network Infrastructure Optimization for Cyber-Physical Systems in Future Smart Buildings," in Proc. **IEEE WASA**, Yellow Mountains, China, Aug. 8-10, 2012.

C71 Yi Shi, **Jia Liu**, Canming Jiang, Cunhao Gao, and Y. Thomas Hou, "An Optimal Link Layer Model for Multi-hop MIMO Networks," in Proc. **IEEE INFOCOM 2011**, Shanghai, China, Apr. 10 - 15, 2011 (**Best Paper Runner-up Award**, acceptance rate: 15%).

C72 **Jia Liu**, Yi Shi, and Y. Thomas Hou, "A Tractable and Accurate Cross-Layer Model for Multi-Hop MIMO Ad Hoc Networks," in Proc. **IEEE INFOCOM 2010**, San Diego, CA, Mar. 15 - 19, 2010 (acceptance rate: 18%).

C73 S. Sushant, Yi Shi, **Jia Liu**, Y. Thomas Hou, and Sastry Kompella"Is Network Coding Always Good for Cooperative Communications?" in Proc. **IEEE INFOCOM 2010**, San Diego, CA, Mar. 15 - 19, 2010 (acceptance rate: 18%).

C74 **Jia Liu**, Y. Thomas Hou, Yi Shi, and Hanif D. Sherali, "On Performance Optimization for Multi-Carrier MIMO Ad Hoc Networks," in Proc. **ACM MobiHoc**, New Orleans, LA, May 18 - 21, 2009 (acceptance rate: 18%).

C75 Yi Shi, Y. Thomas Hou, **Jia Liu**, and Hanif D. Sherali, "How to Correctly Use the Protocol Interference Model for Multi-hop Wireless Networks," in Proc. **ACM MobiHoc**, New Orleans, LA, May 18 - 21, 2009 (acceptance rate: 18%).

C76 **Jia Liu**, Y. Thomas Hou, and Hanif D. Sherali, "Optimal Power Allocation for Achieving Perfect Secrecy Capacity in MIMO Wire-Tap Channels," in *Proc. 43rd Annual Conference on Information Sciences and Systems (***CISS***) 2009*, Baltimore, MD, Mar. 18 - 20, 2009.

C77 **Jia Liu**, Y. Thomas Hou, and Hanif D. Sherali, "On the Performance of MIMO-Based Ad Hoc Networks under Imperfect CSI," in Proc. **IEEE MILCOM**, San Diego, CA, Nov. 17 - 19, 2008 (acceptance rate: 27%).

C78 **Jia Liu**, Y. Thomas Hou, and Hanif D. Sherali, "Cross-Layer Optimization for MIMO-Based Mesh Networks with Dirty Paper Coding," in Proc. IEEE ICC 2008 (**Best Paper Award**), Beijing, China, May 19 - 23, 2008 (acceptance rate: 27%).

C79 **Jia Liu**, Y. Thomas Hou and Hanif D. Sherali, "Maximum Weighted Sum Rate of Multi-Antenna Broadcast Channels," in Proc. **IEEE ICC**, Beijing, China, May 19 - 23, 2008 (acceptance rate: 27%).

C80 **Jia Liu** and Y. Thomas Hou, "Weighted Proportional Fairness Capacity of Gaussian MIMO Broadcast Channels," in Proc. **IEEE INFOCOM**, Phoenix, AZ, Apr. 13 - 17, 2008 (acceptance rate: 20%).

C81 **Jia Liu**, Y. Thomas Hou, and Hanif D. Sherali, "Conjugate Gradient Projection Approach for MIMO Gaussian Broadcast Channels," in Proc. **IEEE ISIT**, Nice, France, Jun. 24 - 29, 2007.

C82 **Jia Liu**, T. Y. Park, Y. Thomas Hou, Yi Shi, and Hanif D. Sherali, "Cross-Layer Optimization of MIMO-Based Mesh Networks Under Orthogonal Channels," in Proc. **IEEE WCNC**, Hong Kong, Mar. 11 - 15, 2007.

C83 **Jia Liu**, Y. Thomas Hou, Yi Shi, and Hanif D. Sherali, "Optimization of Multiuser MIMO Networks with Interference," Proc. **IEEE GLOBECOM**, San Franscisco, Nov. 27 - Dec. 1, 2006.

C84 **Jia Liu** and A. Annamalai, "Efficacy of Channel-and-Node Aware Routing Strategies in Wireless Ad Hoc Networks," in Proc. **IEEE VTC**, Dallas, Oct. 2005.

C85 **Jia Liu** and A. Annamalai, "Channel-Aware routing Protocol for Ad Hoc Networks: Generalized Multiple-Route Path Selection Diversity," in Proc. **IEEE VTC**, Dallas, Oct. 2005.

C86 A. Annamalai and **Jia Liu**, "A Cross-Layer Design Perspective for Multi-Resolution Signaling," in Proc. **IEEE GLOBECOM**, Dallas, Nov. 2004.

C87 **Jia Liu** and A. Annamalai, "Multi-Resolution Signaling for Multimedia Multicasting," in Proc. **IEEE VTC**, Los Angeles, Sep. 2004.

Affiliations/Memberships

- IEEE Senior Member
- ACM Member
- Member of Society for Industrial and Applied Mathematics (SIAM) (since 2007)
- Member of Tau Beta Pi, the National Engineering Honor Society (since 2006)
- Member of Eta Kappa Nu (HKN), Electrical and Computer Honor Society (since 2008)

Professional Services

Reviewer for Journals

- IEEE/ACM Transactions on Networking (2013, 2014, 2015, 2016)
- IEEE Transactions on Information Theory (2009)
- IEEE Transactions on Mobile Computing (2009, 2010)
- IEEE Transactions on Wireless Communications (2004, 2005, 2006, 2007, 2008, 2009, 2010)
- IEEE Transactions on Vehicular Technologies (2004, 2005, 2006, 2007, 2012)
- IEEE Journal on Selected Areas in Communications (2010, 2011, 2012)
- EURASIP Journal on Advances in Signal Processing (2008)

Reviewer for Conferences

- NeurIPS 2021
- ICLR 2021
- AISTATS 200
- IEEE INFOCOM (2007–2021)
- ACM MobiHoc (2016-2020)
- ACM SIGMETRICS (2016-2021)
- IEEE ICC (2007, 2008, 2009, 2010)
- IEEE GLOBECOM (2004, 2009)
- IEEE WCNC (2005, 2007)
- IEEE SECON (2005)
- VTC (2004, 2005)

Technical Program Committee (TPC) Member

- ICML 2022
- ICLR 2021–2022
- NeurIPS 2021–2022
- ICML Workshop on Federated Learning for User Privacy and Data Confidentiality 2021 (FL-ICML'21)
- ICML Workshop on Socially Responsible Machine Learning 2021
- ACM SIGMETRICS (2021–2022)
- IEEE INFOCOM (2010–2021)
- ACM MobiHoc (2017–2020)
- IEEE ICCCN (2013)
- IEEE WCNC (2013, 2014)
- IEEE WASA (2011–2012)
- IEEE CNS (2013)

Submission and Publication Chair

- ACM MobiHoc 2020
- IEEE/IFIP WiOpt 2021

NSF Panelist

- NeTS (2017, 2019, 2020)
- CSR (2018, 2020, 2022)
- EPCN (2022)
- SWIFT (2022)

University Services

- Department Seminar Series Committee, Department of Electrical and Computer Engineering, The Ohio State University (Aug. 2021 – Present)
- Department Graduate Committee, Department of Computer Science, Iowa State University (Aug. 2017 – Aug. 2020)
- Department Equipment Committee, Department of Computer Science, Iowa State University (Aug. 2017 – Aug. 202)
- Registration Chair, 2019 Midwest Big Data Summer School, at Iowa State University
- Faculty Search Committee Member, Fall 2019, Department of Statistics, Iowa State University

Mentoring Experiences

Ph.D. Students

- Xin Zhang: 01/2018 – 12/2020 (Co-advised with Prof. Zhengyuan Zhu in Statistics at Iowa State University); Research Areas: Machine learning theory; data analytics
- Wenbo Ren: 08/2016 – 05/2021 (Co-advised with Prof. Ness B. Shroff in CSE at The Ohio State University); Research Areas: Preference learning under incomplete information; Network optimization
- Menglu Yu: 08/2018 – 04/2022; Research Areas: Machine learning system design; Scheduling; Network optimization
- Ye Tian: 08/2018 – 05/2022; Research Areas: Crowdsourcing; Sharing economy
- Minghong Fang: 09/2017 – 05/2022; Research Areas: Recommendation systems security; Deep learning
- Haibo Yang: 08/2018 – Present; Research Areas: Optimization theory; Control theory; Algorithm design
- Zhuqing Liu: 09/2019 – Present; Research Areas: Optimization for Machine Learning
- Tianchen Zhou: 08/2018 – Present; Research Areas: Reinforcement learning; Multi-armed bandits
- Tianxiang Gao: 08/2019 – Present (Co-advised with Prof. Hongyang Gao in CS at Iowa State University); Research Areas: Optimization theory for machine learning; Deep learning theory
- Peiwen Qiu: 08/2021 – Present; Research Areas: Optimization Theory; Algorithm Design

Postdoctoral Researchers

- Hairi: 11/2020 – Present; Research Areas: Reinforcement learning
- Prashant Khanduri: 09/2020 – 08/2022; Research Areas: Optimization for machine learning

M.S. Students

- Zifan Zhang: 08/2021 – Present; Research Areas: Reinforcement learning for wireless network optimization
- Hamad Ullah: 01/2020 – Present; Research Areas: Wireless network systems simulation and performance evaluation
- Cheng Xiang: 08/2019 – Present; Research Areas: Wireless network systems simulation and performance evaluation
- Zehua Li: 09/2017 – 07/2019; Research Areas: Wireless network systems simulation and performance evaluation
- Zhengxiong Yuan: 08/2018 – Present; Research Areas: Scheduling; Network optimization; Machine learning system design
- Baoyue Bi: 09/2017 – 12/2017; Research Areas: Wireless network optimization

Undergraduate Students

- John Wahlig: 09/2018 – Present; Research Areas: Wireless network optimization (**recipient of the 2020 Dean's High Impact Award for Undergraduate Research from College of Liberal Art and Sciences.**)