

# Jia (Kevin) Liu

---

## Contact Information

620 Drees Labs, 2015 Neil Avenue  
Columbus, OH 43210, U.S.A.

E-mail: [liu@ece.osu.edu](mailto:liu@ece.osu.edu), Phone: (614) 247-4588  
Web: <https://kevinliu-osu.github.io/>

## 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: ~ \$41.5M, Personal Share: ~ \$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,” 10/01/2020 – 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 Airborne Wireless 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 (Senior 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 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).
- J4 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.
- J5 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.
- J6 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.
- J7 **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.
- J8 Hongsen Shi\*, **Jia Liu\***, and Qian Chen, "An RC-Network Approach for HVAC Precooling Optimization in Green Buildings," **IEEE Transactions on Sustainable Computing** (\*Co-primary authors, accepted with minor revision, fast-tracked from ACM e-Energy'18).
- 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 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%).
- C2 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%).
- C3 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%).
- C4 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%).
- C5 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%).

- C6 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%).
- C7 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%).
- C8 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%).
- C9 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.
- C10 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%).
- C11 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%).
- C12 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.
- C13 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.
- C14 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.
- C15 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.
- C16 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%).
- C17 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%).
- C18 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%).



- C19 Tianxiang Gao, Hailiang Liu, **Jia Liu**, Hriday 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%).
- C20 Menglu Yu, Ye Tian, Bo Ji, Chuan Wu, Hriday 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%).
- C21 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%).
- C22 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%).
- C23 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%).
- C24 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 Koltres, **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,” in Proc. Workshop on Wireless Network Testbeds, Experimental Evaluation & Characterization (**ACM WiNTECH**), Virtual Event, Oct. 2021.
- C25 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.
- C26 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.
- C27 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%).
- C28 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%).
- C29 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%).
- C30 Tianxiang Gao, Songtao Lu, **Jia Liu**, and Chris Chu, “On the Convergence of Randomized Bregman Coordinate Descent for Non-Lipschitz Composite Problems,” in Proc. **IEEE ICASSP**, Virtual Event, Jun. 2021.

- C31 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%).
- C32 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%).
- C33 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**).
- C34 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%).
- C35 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%).
- C36 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%).
- C37 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%).
- C38 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.
- C39 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%).
- C40 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**).
- C41 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%).
- C42 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%).
- C43 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.
- C44 Minghong Fang and **Jia Liu**, “Toward Low-Cost and Stable Blockchain Networks,” in Proc. **IEEE ICC**, Dublin, Ireland, Jun. 2020.

- C45 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%).
- C46 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.
- C47 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%).
- C48 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%).
- C49 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%).
- C50 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.
- C51 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%).
- C52 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%).
- C53 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%).
- C54 Wenbo Ren, **Jia Liu**, Ness B. Shroff, “Exploring  $k$  out of Top  $\rho$  Fraction of Arms in Stochastic Bandits,” in Proc. **AISTATS**, Naha, Okinawa, Japan, Apr. 2019 (acceptance rate: 31.7%).
- C55 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%).
- C56 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%).
- C57 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%).
- C58 **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%).

- C59 **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%).
- C60 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%).
- C61 **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%).
- C62 **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%).
- C63 **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%).
- C64 **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.
- C65 **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%).
- C66 **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%).
- C67 **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%).
- C68 **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.
- C69 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%).
- C70 **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%).
- C71 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%).

- C72 **Jia Liu**, Y. Thomas Hou, Yi Shi, and Hanif D. Serali, “On Performance Optimization for Multi-Carrier MIMO Ad Hoc Networks,” in Proc. **ACM MobiHoc**, New Orleans, LA, May 18 - 21, 2009 (acceptance rate: 18%).
- C73 Yi Shi, Y. Thomas Hou, **Jia Liu**, and Hanif D. Serali, “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%).
- C74 **Jia Liu**, Y. Thomas Hou, and Hanif D. Serali, “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.
- C75 **Jia Liu**, Y. Thomas Hou, and Hanif D. Serali, “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%).
- C76 **Jia Liu**, Y. Thomas Hou, and Hanif D. Serali, “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%).
- C77 **Jia Liu**, Y. Thomas Hou and Hanif D. Serali, “Maximum Weighted Sum Rate of Multi-Antenna Broadcast Channels,” in Proc. **IEEE ICC**, Beijing, China, May 19 - 23, 2008 (acceptance rate: 27%).
- C78 **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%).
- C79 **Jia Liu**, Y. Thomas Hou, and Hanif D. Serali, “Conjugate Gradient Projection Approach for MIMO Gaussian Broadcast Channels,” in Proc. **IEEE ISIT**, Nice, France, Jun. 24 - 29, 2007.
- C80 **Jia Liu**, T. Y. Park, Y. Thomas Hou, Yi Shi, and Hanif D. Serali, “Cross-Layer Optimization of MIMO-Based Mesh Networks Under Orthogonal Channels,” in Proc. **IEEE WCNC**, Hong Kong, Mar. 11 - 15, 2007.
- C81 **Jia Liu**, Y. Thomas Hou, Yi Shi, and Hanif D. Serali, “Optimization of Multiuser MIMO Networks with Interference,” Proc. **IEEE GLOBECOM**, San Francisco, Nov. 27 - Dec. 1, 2006.
- C82 **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.
- C83 **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.
- C84 A. Annamalai and **Jia Liu**, “A Cross-Layer Design Perspective for Multi-Resolution Signaling,” in Proc. **IEEE GLOBECOM**, Dallas, Nov. 2004.
- C85 **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.**)