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
Virginia Tech, Blacksburg, VA

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

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

Employment in Academia and Industry

Associate Professor, Dept. of Electrical and Computer Engineering, The Ohio State University, May 2024 - 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

Managing Director, NSF AI Institute for Future Edge Networks and Distributed Intelligence (AI-EDGE), Sept. 2023 - Present

Amazon Scholar, Amazon Science, Mar. 2025 - Present
Research Areas: Machine Learning, Search, Recommender Systems

Amazon Visiting Academics (AVA), Amazon Science, Nov. 2021 - Mar. 2025
Research Areas: Machine Learning, Search, Recommender Systems

Assistant Professor, Dept. of Electrical and Computer Engineering, The Ohio State University, Aug. 2020 - May 2024

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: ∼ \$39.67M, Personal Share: ∼ \$5.66M):

A) National Science Foundation (NSF)

1. **NSF ECCS-2331104**, "Collaborative Research: CPS: Medium: Real-Time Crowd-Sourced Geospatial Digital Twin for Cyber-Physical Systems," 06/15/2024 – 05/31/2027, \$1,200,000 (**Lead PI**, Co-PIs: Bin Li, Randall Berry, and Rongjun Qin).

2. **NSF CAREER 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**).

3. **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).

4. **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**).

5. **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**).

6. **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).

7. **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).

8. **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).

9. **NSF-IIS-2324052**, "PARTNER: AI/ML-Driven Edge Computing for Cardiovascular Disease Diagnosis/Mechanism Study," $2,800,000, Sept. 2023 – Aug. 2027 (Senior Personnel, Lead PI: Prof. Jie Wu, Co-PIs: Bingmei Fu, Nicholas Madamopoulos, Yingbin Liang, and Jun Yoshioka, My share: approximately $200,000).

B) Department of Defense (DoD) Funding Agencies

10. **HR0011-25-2-0019**, "Complex-structured Optimization Algorithms for Non-learning Neural Networks," Defense Advanced Research Projects Agency (DARPA), $500,000, 04/2025 – 10/2026 (**Sole PI**).

11. **ONR N00014-24-1-2729**, "Enabling Federated Learning with Small, Low Power, and Computationally Constrained Devices: A Decentralized-Client-Server Approach," Office of Naval Research (ONR), $750,000 (**ONR 6.2**, **Lead-PI**, my share: $250,000, Co-PIs: Ness B. Shroff and Eylem Ekici, 09/2024 – 08/2027).

12. **D24AP00265**, "Decentralized Sequential Decision Making in the Data-Limited Regime: A Self-Supervised Pretrained Foundation Model Approach," Defense Advanced Research Projects Agency (DARPA) **Young Faculty Award (YFA)**, $500,000, 09/2024 – 08/2026 (**Sole PI**).

13. **AFRL PGSC-SC-111374-19s**, "Machine-Learning-Aided Optimization for Wireless Random Access Networks," Air Force Research Laboratory (AFRL), $160,000, 11/2023 – 09/2024 (**Sole PI**).

14. **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**).

15. **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).

16. **AFRL 2024 Summer Faculty Fellowship Program (SFFP) Award Extension Grant**, "Toward Efficient Federated Split Learning for Tactical Autonomous Swarms," $13,000, 09/30/2024 – 12/08/2024 (**Sole PI**).

17. **AFRL 2024 Summer Faculty Fellowship Program (SFFP) Award**, "Machine-Learning-Aided Optimization for Wireless Random Access Networks," $15,000, 05/12/2024 – 07/05/2024 (**Sole PI**).

18. **AFRL 2023 Summer Faculty Fellowship Program (SFFP) Award**, "Achieving Low Sample, Communication, and Computation Complexities in Decentralized Bilevel Optimization for Learning over Tactical UAV Swarms," $15,000, 06/12/2023 – 08/04/2023 (**Sole PI**).

19. **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**).

20. **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**).

21. **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**).

22. **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**).

23. **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**).

24. **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**).

25. **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**).

26. **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**).

27. **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**).

28. **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**).

29. **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**).

30. **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**).

31. **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

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

33. **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).

34. **Cisco Systems, Inc.**, "Efficient Online Scheduling for Distributed Machine Learning Inference Jobs," Jul. 2023 – Jun. 2024, Amount: $150,000 (**Lead PI**, Co-PI: Ness Shroff).

35. **Meta Platforms, Inc.**, "Taming Sample and Communication Complexities in Distributed Complex-Structured Optimization for Learning," Jan. 2025 – Dec. 2025, Amount: $100,000 (**Sole PI**).

D) Other Fundings (Senior Personnel)

36. **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).

37. **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

10. **2024 IBM Research Pat Goldberg Memorial Best Paper Award Honorable Mention**: Songtao Lu, Siliang Zeng, Xiaodong Cui, Mark S. Squillante, Lior Horesh, Brian Kingsbury, Jia Liu, and Mingyi Hong, "A Stochastic Linearized Augmented Lagrangian Method for Decentralized Bilevel Optimization," in Proc. NeurIPS, New Orleans, LA, Dec. 2022 (acceptance rate: 25.6%).

B) Major Awards and Honors

1. **Defense Advanced Research Projects Agency (DARPA) Young Faculty Award, 2024**

2. **National Science Foundation (NSF) CAREER Award, 2020**

3. **Amazon Scholar, 2025**

4. **Google Faculty Research Award, 2020**

5. **Cisco Research Award, 2023, 2024**

6. **Amazon Visiting Academics (AVA), 2021**

7. **LAS Award for Early Achievement in Research, 2020**, the College of Liberal Arts and Sciences, Iowa State University

8. **Air Force Office of Scientific and Research Summer Faculty Fellowship, 2024**

9. **Air Force Office of Scientific and Research Summer Faculty Fellowship, 2023**

10. **Air Force Office of Scientific and Research Summer Faculty Fellowship, 2016**

11. **Joint Keynote Speaker, 05/2018**, joint EFC-IoT/RAWNET workshop, Shanghai, China

12. Co-recipient of **Bell Labs President Gold Award**, Bell Labs, 2001

13. Paul E. Torgersen Research Competition Finalist, Virginia Tech, 2009

Teaching Experience

The Ohio State University
Fall 2024: ECE 8101: *Non-Convex Optimization for Machine Learning*
Spring 2024: ECE 5101/CSE 5463: *Introduction to Wireless Networks*
Fall 2023: ECE 3561: *Advanced Digital Design*
Spring 2023: ECE 5101/CSE 5463: *Introduction to Wireless Networks*
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*

Publications

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

Refereed Journal Articles

J1 <u>Xin Zhang</u>, **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 <u>Menglu Yu</u>, **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 Zhuqing Liu, Chaosheng Dong, Michinari Momma, Simone Shao, Shaoyuan Xu, Yan Gao, Haibo Yang, and **Jia Liu**, "STIMULUS: Achieving Fast Convergence and Low Sample Complexity in Stochastic Multi-Objective Learning," in Proc. **UAI**, Rio de Janeiro, Brazil, Jul. 2025 (acceptance rate: 30.7%).

C2 Jin Shang, Simone Shao, Tian Tong, Fan Yang, Yetian Chen, Yang Jiao, **Jia Liu**, and Yan Gao, "Divide and Orthogonalize: Efficient Continual Learning with Local Model Space Projection," in Proc. **UAI**, Rio de Janeiro, Brazil, Jul. 2025 (acceptance rate: 30.7%).

C3 Zhiyao Zhang, Myeung Suk Oh, FNU Hairi, Ziyue Luo, Alvaro Velasquez, and **Jia Liu**, "Finite-Time Global Optimality Convergence in Deep Neural Actor-Critic Methods for Decentralized Multi-Agent Reinforcement Learning," in Proc. **ICML**, Vancouver, Canada, Jul. 2025 (acceptance rate: 26.9%).

C4 Srijith Nair, Michael Lin, Peizhong Ju, Amirreza Talebi, Elizabeth Serena Bentley, and **Jia Liu**, "FSL-SAGE: Accelerating Federated Split Learning via Smashed Activation Gradient Estimation," in Proc. **ICML**, Vancouver, Canada, Jul. 2025 (acceptance rate: 26.9%).

C5 Ismail Alkhouri*, Cedric Le Denmat*, Yingjie Li, Cunxi Yu, **Jia Liu**, Rongrong Wang, and Alvaro Velasquez, "Quadratic Differentiable Optimization for the Maximum Independent Set Problem," in Proc. **ICML**, Vancouver, Canada, Jul. 2025 (acceptance rate: 26.9%).

C6 Zhen Qin, Zhuqing Liu, Songtao Lu, Yingbin Liang, and **Jia Liu**, "DUET: Decentralized Bilevel Optimization without Lower-Level Strong Convexity," in Proc. **ICLR**, Singapore, Apr. 2025 (acceptance rate: 32%).

C7 Minghong Fang, Zhuqing Liu, Xuecen Zhao and **Jia Liu**, "Byzantine-Robust Federated Learning over Ring-All-Reduce Distributed Computing," in Proc. **TheWebConf (WWW)**, Sydney, Australia, Apr. 2025.

C8 Mingjing Xu, Peizhong Ju, **Jia Liu**, and Haibo Yang, "PSMGD: Periodic Stochastic Multi-Gradient Descent for Fast Multi-Objective Optimization," in Proc. **AAAI**, Pennsylvania, PA, Feb. 2025 (acceptance rate: 23.4%).

C9 Ziyue Luo, **Jia Liu**, Myungjin Lee, and Ness Shroff, "Prediction-Assisted Online Distributed Deep Learning Workload Scheduling in GPU Clusters," in Proc. **IEEE INFOCOM**, London, UK, May 2025 (acceptance rate: 18.6%).

C10 Hairi FNU*, Minghong Fang*, Zifan Zhang, Alvaro Velasquez, and **Jia Liu**, "On the Hardness of Decentralized Multi-Agent Policy Evaluation under Byzantine Attacks," in Proc. **IEEE/IFIP WiOpt**, Seoul, South Korea, Oct. 2024 (*Co-primary authors, **Invited Paper**).

C11 Jin Shang, Yang Jiao, Chenghuan Guo, Minghao Sun, Yan Gao, **Jia Liu**, Michinari Momma, Itetsu Taru, and Yi Sun, "Transitivity-Encoded Graph Attention Networks for Complementary Item Recommendation," in Proc. IEEE International Conference on Data Mining (**ICDM**), Abu Dhabi, UAE, Dec. 2024 (acceptance rate: 10.9%).

C12 Peizhong Ju, Haibo Yang, **Jia Liu**, Yingbin Liang, and Ness B. Shroff, "Can We Theoretically Quantify the Impacts of Local Updates on the Generalization Performance of Federated Learning?" in Proc. **ACM MobiHoc**, Athens, Greece, Oct. 2024 (acceptance rate: 24.5%).

C13 Minghe Zhang, Chaosheng Dong, Jinmiao Fu, Tianchen Zhou, Jia Liang, **Jia Liu**, Bo Liu, Michinari Momma, Bryan Wang, Yan Gao, and Yi Sun, "AdaSelection: Accelerating Deep Learning Training through Data Subsampling?" in Proc. **SIGKDD Workshop on Resource-Efficient Learning for Knowledge Discovery**, Barcelona, Spain, Jul. 2024.

C14 Haibo Yang, Peiwen Qiu, Prashant Khanduri, Minghong Fang, **Jia Liu**, "Understanding Server-Assisted Federated Learning in the Presence of Incomplete Client Participation," in Proc. **ICML**, Vienna, Austria, Jul. 2024 (acceptance rate: 27.5%).

C15 Tianchen Zhou, FNU Hairi, Haibo Yang, **Jia Liu**, Tian Tong, Fan Yang, Michinari Momma, Yan Gao, "Finite-Time Convergence and Sample Complexity of Actor-Critic Multi-Objective Reinforcement Learning," in Proc. **ICML**, Vienna, Austria, Jul. 2024 (acceptance rate: 27.5%).

C16 Minghong Fang, Zifan Zhang, Hairi FNU, Prashant Khanduri, **Jia Liu**, Songtao Lu, Neil Gong, Yuchen Liu, "Toward Byzantine-Robust Decentralized Federated Learning," in Proc. ACM Conference on Computer and Communications Security **(CCS)**, Salt Lake City, UT, Oct. 2024.

C17 Yanhui Guo, Shaoyuan Xu, Jinmiao Fu, **Jia Liu**, Chaosheng Dong, and Bryan Wang, "Q-Tuning: Queue-based Prompt Tuning for Lifelong Few-shot Language Learning," in Proc. Annual Conference of the North American Chapter of the Association for Computational Linguistics **(NAACL)**, Mexico City, Mexico, June 2024.

C18 Yang Jiao, Fan Yang, Yetian Chen, Yan Gao, **Jia Liu**, and Yi Sun, "Rethinking Sequential Relationships: Improving Sequential Recommenders with Inter-Sequence Data Augmentation," in Proc. **ACM TheWebConf (WWW)**, Singapore, May 2024 (acceptance rate: 20.2%).

C19 Zhuqing, Xin Zhang, **Jia Liu**, Zhengyuan Zhu, and Songtao Lu, "PILOT: An $O(1/T)$-Convergent Approach for Policy Evaluation with Nonlinear Function Approximation," in Proc. **ICLR**, Vienna, Austria, May 2024 (**Spotlight Presentation**, acceptance rate: 31%, spotlight rate: 5%).

C20 FNU Hairi, Zifan Zhang, and **Jia Liu**, "Sample and Communication Efficient Fully Decentralized MARL Policy Evaluation via a New Approach: Local TD Update," in Proc. **ACM AAMAS**, Auckland, New Zealand, May 2024 (acceptance rate: 25%).

C21 Haibo Yang, Zhuqing Liu, **Jia Liu**, Chaosheng Dong, and Michinari Momma, "Federated Multi-Objective Learning," in Proc. **NeurIPS**, New Orleans, LA, Dec. 2023 (acceptance rate: 26.1%).

C22 Zhuqing Liu, Xin Zhang, Songtao Lu, and **Jia Liu**, "PRECISION: Decentralized Constrained Min-Max Learning with Low Communication and Sample Complexities," in Proc. **ACM MobiHoc**, Washington, DC, Oct. 2023 (acceptance rate: 21.9%).

C23 Tianchen Zhou, Michinari Momma, Chaosheng Dong, Fan Yang, Chenghuan Guo, Jin Shang, and **Jia Liu**, "Multi-Task Learning on Heterogeneous Graph Neural Network for Substitute Recommendation," in in Proc. KDD Workshop on Mining and Learning with Graphs, (**MLG**), Long Beach, CA, Aug. 2023.

C24 Moyan Li, Jinmiao Fu, Shaoyuan Xu, Huidong Liu, **Jia Liu**, and Bryan Wang, "Hierarchical Conditional Image-to-Image Translation for Multi-Task Image Defect Correction on Shopping Websites," in Proc. **ICIP**, Kuala Lumpur, Malaysia, Oct. 2023.

C25 Zhuqing Liu, Xin Zhang, Prashant Khanduri, Songtao Lu, and **Jia Liu**, "Prometheus: Taming Sample and Communication Complexities in Constrained Decentralized Stochastic Bilevel Learning," in Proc. **ICML**, Honolulu, HI, Jul. 2023 (acceptance rate: 27.9%).

C26 Prashant Khanduri, Ioannis Tsaknakis, Yihua Zhang, **Jia Liu**, Sijia Liu, Jiawei Zhang, and Mingyi Hong, "Linearly Constrained Bilevel Optimization: A Smoothed Implicit Gradient Approach," in Proc. **ICML**, Honolulu, HI, Jul. 2023 (acceptance rate: 27.9%).

C27 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. **IEEE INFOCOM**, New York City, NY, May 2023 (acceptance rate: 19.2%).

C28 Sen Lin, Ming Shi, Anish Arora, Raef Bassily, Elisa Bertino, Constantine Caramanis, Kaushik Chowdhury, Eylem Ekici, Atilla Eryilmaz, Stratis Ioannidis, Nan Jiang, Gauri Joshi, Jim Kurose, Yingbin Liang, Zhiqiang Lin, **Jia Liu**, Mingyan Liu, Tommaso Melodia, Aryan Mokhtari, Rob Nowak, Sewoong Oh, Srini Parthasarathy, Chunyi Peng, Hulya Seferoglu, Ness Shroff, Sanjay Shakkottai, Kannan Srinivasan, Ameet Talwalkar, Aylin Yener and Lei Ying, "Leveraging Synergies Between AI and Networking to Build Next Generation Edge Networks," in Proc. **IEEE International Conference on Collaboration and Internet Computing (CIC)**, Virtual, Dec. 2022.

C29 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.

C30 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%).

C31 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%).

C32 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%).

C33 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%).

C34 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%).

C35 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%).

C36 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%).

C37 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%).

C38 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.

C39 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%).

C40 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%).

C41 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.

C42 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.

C43 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.

C44 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. 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.

C45 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%).

C46 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%).

C47 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," in Proc. **ICLR**, Virtual Event, Apr. 2022 (acceptance rate: 32%).

C48 Tianxiang Gao, Hailiang Liu, **Jia Liu**, Hridesh Rajan, and Hongyang Gao, "A Global Convergence Theory for Deep ReLU Implicit Networks via Over-parameterization," in Proc. **ICLR**, Virtual Event, Apr. 2022 (acceptance rate: 32%).

C49 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%).

C50 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%).

C51 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%).

C52 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%).

C53 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.

C54 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.

C55 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.

C56 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%).

C57 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%).

C58 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%).

C59 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.

C60 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%).

C61 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%).

C62 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**).

C63 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%).

C64 Xin Zhang, **Jia Liu**, Zhengyuan Zhu, Elizabeth S. Bentley, "Low Sample and Communication Complexities in Decentralized Learning: A Triple Hybrid Approach," in Proc. **IEEE INFO-COM**, Virtual Event, May 2021 (acceptance rate: 19.9%).

C65 <u>Menglu Yu</u>, 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%).

C66 <u>Peizhong Ju</u>, 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%).

C67 <u>Xin Zhang</u>, **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.

C68 <u>Wenbo Ren</u>, **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%).

C69 <u>Haibo Yang</u>, <u>Xin Zhang</u>, <u>Minghong Fang</u>, 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**).

C70 <u>Ye Tian</u>, **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%).

C71 <u>Xin Zhang</u>, <u>Minghong Fang</u>, **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%).

C72 <u>Zhengxiong Yuan</u>, 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.

C73 <u>Minghong Fang</u> and **Jia Liu**, "Toward Low-Cost and Stable Blockchain Networks," in Proc. **IEEE ICC**, Dublin, Ireland, Jun. 2020.

C74 <u>Minghong Fang</u>, 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%).

C75 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.

C76 <u>Xin Zhang</u>, **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%).

C77 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%).

C78 <u>Wenbo Ren</u>, **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%).

C79 <u>Haibo Yang</u>, <u>Xin Zhang</u>, <u>Minghong Fang</u>, 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.

C80 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%).

C81 <u>Xin Zhang</u>, **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%).

C82 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%).

C83 <u>Wenbo Ren</u>, **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%).

C84 <u>Minghong Fang</u>, 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%).

C85 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%).

C86 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%).

C87 **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%).

C88 **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%).

C89 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%).

C90 **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%).

C91 **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%).

C92 **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%).

C93 **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.

C94 **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%).

C95 **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%).

C96 **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%).

C97 **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.

C98 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%).

C99 **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%).

C100 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%).

C101 **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%).

C102 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%).

C103 **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.

C104 **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%).

C105 **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** (**Best Paper Award**), Beijing, China, May 19 - 23, 2008 (acceptance rate: 27%).

C106 **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%).

C107 **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%).

C108 **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.

C109 **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.

C110 **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.

C111 **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.

C112 **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.

C113 A. Annamalai and **Jia Liu**, "A Cross-Layer Design Perspective for Multi-Resolution Signaling," in Proc. **IEEE GLOBECOM**, Dallas, Nov. 2004.

C114 **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

Editorial Board

- Associate Editor for IEEE Transactions on Cognitive Communications and Networking, January 2023 to Present.
- Guest Editor for IEEE Network Magazine: Special Issue on Interplay between Machine Learning and Networking Systems, July 2023.
- Lead Editor of IEEE/ACM Transactions on Networking, Special Issue on AI and Networking, December 2025.

Chair of Conferences, Workshops, or Seminar Series

- Co-Chair, ACM MobiCom 2024 Workshop on Machine Learning for NextG Networks, Nov. 18, 2024.
- Co-Chair, WiOpt 2023 Workshop on Machine Learning in Wireless Communications, Aug. 24-27, 2023.
- Chair, OSU ECE Department Seminar Series, Autumn 2022 – Spring 2023.
- Co-Chair, The 4th Buffalo Day for 5G and Wireless Internet of Things, November 2022.
- Co-Chair, ACM MobiHoc 2021 Workshop on Machine-Learning-Aided Social Networking, July 26, 2021.

Conference Technical Program Committee (TPC) Member

- ACL (2024)
- IWQoS (2024)
- ICDCS (2024)
- The 7th Age and Semantics of Information Workshop (ASoI), in conjunction with IEEE IN-FOCOM 2024.
- ICML (2022–Present)
- ICLR (2021–Present)
- NeurIPS (2021–2022)
- ICML Workshop on Federated Learning for User Privacy and Data Confidentiality 2021 (FL-ICML'21)
- ACM SIGMETRICS 2021–2022
- IEEE INFOCOM (2010–Present)
- ACM MobiHoc (2017–Present)
- IEEE/IFIP WiOpt (2018–2021)
- The Age of Information Workshop, in conjunction with IEEE INFOCOM (2020-2021).
- International Teletraffic Congress (ITC) 2017
- IEEE ICCCN (2013, 2018)
- IEEE WCNC (2013, 2014)
- IEEE CNS (2013)
- IEEE WoWMoM (2023)

Conference Submission and Publication Chair

- ACM MobiHoc 2020
- IEEE/IFIP WiOpt 2021

Conference Publicity Chair

- IEEE/IFIP WiOpt 2023

Conference Session Chairs

- ACM SIGMETRICS 2021, Session 1A: (Learning) Bandits and Friends
- IEEE INFOCOM 2017, Session on Scheduling for Data Processing

Reviewer / Panelist for NSF

- CISE (2017, 2018, 2019, 2020, 2022)
- ENG (2022)

Reviewer for Journals

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

Reviewer for Conferences

- NeurIPS (2021–Present)
- ICLR (2021–Present)
- AISTATS 2020
- IEEE INFOCOM (2007–Present)
- ACM MobiHoc (2016-Present)
- ACM SIGMETRICS (2016-2022)
- IEEE ICC (2007, 2008, 2009, 2010)
- IEEE GLOBECOM (2004, 2009)
- IEEE WCNC (2005, 2007)
- IEEE SECON (2005)
- VTC (2004, 2005)

Public Media and Public Keynote Talks

- "Recent Trends in Generative AI," Keynote Talk at 2024 Technology Conference: AI and Cybersecurity for Forward-Thinking Libraries, Northeast Ohio Regional Library System, Twinsburg, OH, 11/7/2024.
- "Kevin Liu - The Future of Machine Learning with Creative AI and Science": Interview with the Conversations on Applied AI Podcast, on major media platforms, including Apple Podcasts, YouTube, Spotify, Amazon Music, etc.
- "Artificial Intelligence and Machine Learning," Keynote Talk at Outdoor Advertising Association September Meeting, Columbus, OH, 9/23/2023.

Academic Invited Talks / Keynote Talks / Tutorials / Lectures

- "Finite-Time Convergence and Sample Complexity of Actor-Critic Multi-Objective Reinforcement Learning," ACM MobiHoc'24 Workshop on Stochastic Control, RL, and Decision Making, 10/14/2024.

- "Federated Multi-Objective Learning," ACM MobiHoc'24 Workshop on Machine Learning for Next Generation Communication and Edge Networks (ML4NxtGNet), 10/14/2024.

- "Federated Multi-Objective Learning," Departmental Seminar, University of Louisville, 9/6/2024.

- "Federated Multi-Objective Learning," Joint AI-EDGE and OSU ECE Department Seminar, 1/25/2024.

- "Federated Multi-Objective Learning," IFIP Performance 2023 Workshop on Intelligent Edge Computing for Data-Rich Applications (iEdge), Northwestern University, Evanston, IL, 11/17/2023.

- "Mitigating Data and System Heterogeneity and Taming Fat-Tailed Noise in Federated Learning," Seminar at IBM T. J. Watson Research Center, 7/13/2023.

- "Perserverance Is All You Need," Presentation at the Panel of "Navigating the Challenges of an Early Career in Academia," ACSIC 2023, 6/24/2023.

- "INTERACT: Achieving Low Sample and Communication Complexities in Decentralized Bilevel Learning over Networks," SIAM OP'23 Symposium on Bilevel Optimization and Minimax Problems: Theory, Algorithms, and Applications, 6/1/2023.

- "Mitigating Data and System Heterogeneity and Taming Fat-Tailed Noise in Federated Learning," Joint AI-EDGE and OSU ECE Department Seminar, 1/12/2023.

- "Mitigating Data and System Heterogeneity in Federated Learning," 2022 Google Workshop on Federated Learning and Analytics, 11/10/2022.

- "Mitigating Data and System Heterogeneity and Taming Fat-Tailed Noise in Federated Learning," MINDS and CIS Seminar Series, Johns Hopkins University, 10/4/2022.

- "Mitigating Data and System Heterogeneity and Achieving Linear Convergence Speedup in Federated Learning," Department of Electrical Engineering, University at Buffalo, 8/12/2022.

- "Mitigating Data and System Heterogeneity and Achieving Linear Convergence Speedup in Federated Learning," Department of Electrical and Computer Engineering, Rensselaer Polytechnic Institute, 8/3/2022.

- "Optimization for Deep Learning," OSU TDAI Deep Learning Summer School Tutorial, 6/1/2022.

- "Incentivized Bandit Learning under Self-Reinforcing User Preferences for Online Recommender Systems," Department of Computer Science, Iowa State University, 4/28/2022.

- "Computing-Networking Co-Design for Decentralized Learning over Wireless Computing Networks," The 3rd Buffalo Day for 5G and Wireless Internet of Things, Virtual Event, 11/19/2021.

- "Incentivized Bandit Learning under Self-Reinforcing User Preferences for Online Recommender Systems?" Amazon Tech Talk, Virtual Event, 09/21/2021.

- "Can We Achieve Fresh Information with Selfish Users in Crowd-Learning?" Dept. of Computer Science, Texas Tech University, 3/2/2021.

- "Achieving Optimal Sample Complexity for Active Preference Learning under Noisy Environments, Amazon Tech Talk, Virtual Event, 10/26/2020.

- "Elements of a Competitive NSF CAREER Proposal: A Personal Reflection," NSF NeTS CAREER Webinar for Aspiring PIs, 6/17/2020.

- "Communication-Efficient Network-Consensus Optimization with Differential-Coded Compressors," SIAM MDS 2020 Virtual Mini-sympoisum on Deep Learning via Optimal Control in Data Space, 6/18/2020.
- "Communication-Efficient Network-Consensus Optimization with Differential-Coded Compressors," CAM-MDL Joint Seminar Series, Dept. of Mathematics, Iowa State University, 2/17/2020.
- "Can We Achieve Fresh Information with Selfish Users in Crowd-Learning?" TADS Lunch-n-Learn Series, Iowa State University, 2/13/2020.
- "Communication-Efficient Network-Consensus Optimization with Differential-Coded Compressors," The Chinese University of Hong Kong (Shenzhen), 1/9/2020.
- "Communication-Efficient Network-Consensus Optimization with Differential-Coded Compressors," Sun Yat-Sen University, 1/7/2020.
- "Can We Achieve Fresh Information with Selfish Users in Crowd-Learning?" International Workshop on Intelligence Network and Edge Computing, Sun Yat-Sen University, 8/14/2019.
- "Can We Achieve Fresh Information with Selfish Users in Crowd-Learning?" Google Tech Talk, Mountain View, California, 11/20/2019.
- "Exploring k out of Top ρ Fraction of Arms in Stochastic Bandits," Institute for Interdisciplinary Information Sciences (IIIS) – Haihua Frontier Seminar Series, Tsinghua University, 8/12/2019.
- "Can We Achieve Fresh Information with Selfish Users in Crowd-Learning?" John Hopcroft Center for Computer Science, Shanghai Jiao Tong University, 7/2/2019.
- "Combinatorial Bandits with Fairness Constraints," Annual ShanghaiTech Symposium on Information Science and Technology (ASSIST) 2019, ShanghaiTech University, 7/2/2019.
- "On Convergence of Asynchronous Stochastic Gradient Descent with Unbounded Delay in Non-Convex Learning," School of Electronics and Information Engineering, South China University of Technology, Guangzhou, China, 5/15/2018.
- "On Convergence of Asynchronous Stochastic Gradient Descent with Unbounded Delay in Non-Convex Learning," School of Data and Computer Science, Sun Yet-Sen University, Guangzhou, China, 5/14/2018.
- "Momentum-Based Resource Control and Optimization at the Edge of IoT," EFC-IoT and RAWNET joint keynote presentation, Shanghai Jiaotong University, Shanghai, China, 5/11/2018.
- "On Convergence of Asynchronous Stochastic Gradient Descent with Unbounded Delay in Non-Convex Learning," School of Computer Science and Technology, University of Science and Technology of China, Hefei, China, 5/10/2018.
- "Dynamic Resource Control and Optimization for Data-Intensive Network Systems," Dept. of CS, University of Victoria, 7/20/2017
- "Dynamic Resource Control and Optimization for Data-Intensive Wireless Network Systems," Dept. of ECE, Purdue University, 6/14/2017
- "Dynamic Resource Control and Optimization for Data-Intensive Network Systems," Dept. of EECS, Northwestern University, 6/13/2017
- "Gradient Descent & Co.: From Machine Learning to Wireless Networks Utility Maximization," Dept. of ECE, The Ohio State University, 4/19/2017
- "Achieving Low-Delay and Fast-Convergence in Data-Intensive Mobile Computing Systems," Dept. of CS, Iowa State University, 4/4/2017
- "Dynamic Resource Control and Optimization for Data-Intensive Network Systems," Dept. of ECE, Mississippi State University, 3/28/2017

- "Dynamic Resource Control and Optimization for Data-Intensive Network Systems," Dept. of CS, Tulane University, 3/21/2017
- "Dynamic Resource Control and Optimization for Data-Intensive Network Systems," Dept. of EECS, Wichita State University, 3/15/2017
- "Dynamic Resource Control and Optimization for Data-Intensive Network Systems," Dept. of CS, Virginia Commonwealth University, 3/10/2017
- "A Momentum-Based Approach for Defending Denial-of-Service Attacks from Networked Things," Dept. of SIE, University of Arizona, 3/6/2017
- "Dynamic Resource Control and Optimization for Stochastic Network Systems," Dept. of CS, University of North Carolina at Charlotte, 3/2/2017
- "Dynamic Resource Control and Optimization for Stochastic Networked Systems," Dept. of EECS, University of Tennessee, Knoxville, 2/22/2017
- "Dynamic Resource Control and Optimization for Stochastic Networked Systems," Dept. of ECE, North Carolina State University, 2/10/2017
- "Dynamic Resource Control and Optimization for Next-Generation Wireless Communications," Dept. of EECS, University of Kansas, 12/02/2016
- "Achieving Low-Delay and Fast-Convergence in Network Systems Optimization: A Momentum-Based Approach," Dept. of ECE, Texas A&M University, 10/06/2016
- "On the Impacts of Hybrid Beamforming on Millimeter-Wave Cellular Network Optimization," Air Force Research Lab, Information Institute, 08/11/2016
- "Achieving Low-Delay and Fast-Convergence in Network Systems Optimization: A Momentum-Based Approach," Dept. of ECE, Rensselaer Polytechnic Institute, 08/05/2016
- "Dynamic Resource Control and Optimization for Stochastic Networked Systems," Dept. of CS, University of Delaware, 02/26/2016
- "Dynamic Resource Control and Optimization for Airborne Networks," Air Force Research Lab, Information Institute, 08/25/2015
- "Fast Converging Distributed Optimization for Networked Systems: A Second-Order Approach," IIIS, Tsinghua University, 05/11/2015

University Services

- Department Admission Committee, Department of Electrical and Computer Engineering, The Ohio State University (Aug. 2024 – Present)
- Department Seminar Series Committee, Department of Electrical and Computer Engineering, The Ohio State University (Aug. 2021 – Aug. 2024)
- 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

1. 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
2. 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
3. Menglu Yu: 08/2018 – 04/2022; Research Areas: Machine learning system design; Scheduling; Network optimization
4. Ye Tian: 08/2018 – 05/2022; Research Areas: Crowdsourcing; Sharing economy
5. Minghong Fang: 09/2017 – 05/2022; Research Areas: Recommendation systems security; Deep learning
6. Haibo Yang: 08/2018 – Present; Research Areas: Optimization theory; Control theory; Algorithm design
7. Zhuqing Liu: 09/2019 – Present; Research Areas: Optimization for Machine Learning
8. Tianchen Zhou: 08/2018 – Present; Research Areas: Reinforcement learning; Multi-armed bandits
9. 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
10. Peiwen Qiu: 08/2021 – Present; Research Areas: Optimization Theory; Algorithm Design
11. Zhen Qin: 08/2023 – Present; Research Areas: Optimization Theory; Algorithm Design
12. Srijith Nair: 08/2023 – Present; Research Areas: Optimization Theory; Algorithm Design
13. Zhiyao Zhang: 08/2024 – Present; Research Areas: Optimization Theory; Algorithm Design
14. Chengxuan Wang: 01/2025 – Present; Research Areas: Network Optimization for Learning

Postdoctoral Researchers

1. Prashant Khanduri: 09/2020 – 08/2022; Research Areas: Optimization for machine learning
2. Hairi: 11/2020 – 08/2023; Research Areas: Reinforcement learning
3. Ziyue Luo: 12/2022 – Present; Research Areas: Scheduling and resource allocation for distributed machine learning
4. Myeung Suk Oh: 09/2024 – Present; Research Areas: AI and Machine Learning for Communications and Networking

M.S. Students

1. Cedric Le Denmat: 09/2023 – 12/2024; Research Areas: Learning theory and applications.
2. Jichao (Ciao) Yu: 08/2023 – 05/2024; Research Areas: Federated learning, distributed optimization.
3. Zifan Zhang: 08/2021 – 05/2023; Research Areas: Reinforcement learning for wireless network optimization
4. Hamad Ullah: 01/2020 – 05/2022; Research Areas: Wireless network systems simulation and performance evaluation

5. Cheng Xiang: 08/2019 – 12/2019; Research Areas: Wireless network systems simulation and performance evaluation

6. Zehua Li: 09/2017 – 07/2019; Research Areas: Wireless network systems simulation and performance evaluation

7. Zhengxiong Yuan: 08/2018 – 12/2020; Research Areas: Scheduling; Network optimization; Machine learning system design

8. Baoyue Bi: 09/2017 – 12/2017; Research Areas: Wireless network optimization

Undergraduate Students

1. 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.**)

2. Michael Lin: 05/2023 – Present; Research Areas: Federated Split Learning

3. Anutam Srinivasan: 05/2023 – 08/2023; Research Areas: Machine Learning and Artificial Intelligence

4. Carlos Alanis: 05/2023 – 08/2023; Research Areas: Machine Learning and Artificial Intelligence

5. Dylan Damiano: 05/2023 – 08/2023; Research Areas: Machine Learning and Artificial Intelligence

6. Eberado Trejo: 05/2023 – 08/2023; Research Areas: Machine Learning and Artificial Intelligence

7. Jose Morales: 05/2023 – 08/2023; Research Areas: Machine Learning and Artificial Intelligence

8. Kadija Sylla: 05/2023 – 08/2023; Research Areas: Machine Learning and Artificial Intelligence

9. Ladarius Yancey: 05/2023 – 08/2023; Research Areas: Machine Learning and Artificial Intelligence

10. Larry Bryant: 05/2023 – 08/2023; Research Areas: Machine Learning and Artificial Intelligence

11. Luke Watson: 05/2023 – 08/2023; Research Areas: Machine Learning and Artificial Intelligence

12. Natalia Navaez: 05/2023 – 08/2023; Research Areas: Machine Learning and Artificial Intelligence

13. Ngat Kpa: 05/2023 – 08/2023; Research Areas: Machine Learning and Artificial Intelligence

14. Banbir Singh: 05/2023 – 08/2023; Research Areas: Machine Learning and Artificial Intelligence

15. Ryan Snyder: 05/2023 – 08/2023; Research Areas: Machine Learning and Artificial Intelligence

16. Victor Fawole: 05/2023 – 08/2023; Research Areas: Machine Learning and Artificial Intelligence

17. Yassir Atlas: 05/2023 – 08/2023; Research Areas: Machine Learning and Artificial Intelligence

18. Yuni Jeong: 05/2023 – 08/2023; Research Areas: Machine Learning and Artificial Intelligence

19. Herbert Lawson: 05/2024 – 08/2024; Research Areas: Machine Learning and Artificial Intelligence

20. Daunovan McCullough: 05/2024 – 08/2024; Research Areas: Machine Learning and Artificial Intelligence

21. Raul Gomez: 05/2024 – 08/2024; Research Areas: Machine Learning and Artificial Intelligence

22. Henry Redder: 05/2024 – 08/2024; Research Areas: Machine Learning and Artificial Intelligence

23. Victor Wu: 05/2024 – 08/2024; Research Areas: Machine Learning and Artificial Intelligence

24. Eshan Ahmad: 05/2024 – 08/2024; Research Areas: Machine Learning and Artificial Intelligence

25. Chen Yan: 05/2024 – 08/2024; Research Areas: Machine Learning and Artificial Intelligence

26. Mark Pedraza: 05/2024 – 08/2024; Research Areas: Machine Learning and Artificial Intelligence

27. Dyllan Eslava: 05/2024 – 08/2024; Research Areas: Machine Learning and Artificial Intelligence

28. Jonathan Kim: 05/2024 – 08/2024; Research Areas: Machine Learning and Artificial Intelligence

29. Dante LoPriore: 05/2024 – 08/2024; Research Areas: Machine Learning and Artificial Intelligence

30. Andres Velasquez: 05/2024 – 08/2024; Research Areas: Machine Learning and Artificial Intelligence

31. Melissa Swinehart: 05/2024 – 08/2024; Research Areas: Machine Learning and Artificial Intelligence

32. Carlos Montemayor Tristan: 05/2024 – 08/2024; Research Areas: Machine Learning and Artificial Intelligence

33. Aysha Chaudhry: 05/2024 – 08/2024; Research Areas: Machine Learning and Artificial Intelligence

34. Andi Scarola: 05/2024 – 08/2024; Research Areas: Machine Learning and Artificial Intelligence

High School Students

1. Anosh Ardeni: 05/2023 – 08/2023; Research Areas: Machine Learning and Artificial Intelligence

2. Krish Badri: 05/2023 – 08/2023; Research Areas: Machine Learning and Artificial Intelligence

Research Group Alumni and Job Placement

Ph.D. Students in Academia

1. Minghong Fang: 09/2017 – 05/2022; Research Areas: Recommendation systems security; Deep learning; **Employment**: Tenure-Track Assistant Professor at University of Louisville

2. Haibo Yang: 08/2018 – 05/2023; Research Areas: Optimization theory; Control theory; Algorithm design; **Employment**: Tenure-Track Assistant Professor at Rochester Institute of Technology

3. Zhuqing Liu: 09/2019 – 05/2024; Research Areas: Optimization for Machine Learning; **Employment**: Tenure-Track Assistant Professor at University of North Texas

4. Tianxiang Gao: 08/2019 – 05/2024 (Co-advised with Prof. Hongyang Gao in CS at Iowa State University); Research Areas: Optimization theory for machine learning; Deep learning theory; **Employment**: Tenure-Track Assistant Professor at DePaul University

Postdoctoral Researchers in Academia

1. Prashant Khanduri: 09/2020 – 08/2022; Research Areas: Optimization for machine learning; **Employment**: Tenure-Track Assistant Professor at Wayne State University

2. Hairi FNU: 11/2020 – 08/2023; Research Areas: Reinforcement learning; **Employment**: Tenure-Track Assistant Professor at University of Wisconsin, Whitewater

Ph.D. Students in Industry

1. Xin Zhang: 01/2018 – 12/2020 (Co-advised with Prof. Zhengyuan Zhu in Statistics at Iowa State University); **Employment**: Research Scientist at Meta

2. Wenbo Ren: 08/2016 – 05/2021 (Co-advised with Prof. Ness B. Shroff in CSE at The Ohio State University); **Employment**: Research Scientist at Meta

3. Menglu Yu: 08/2018 – 04/2022; Research Areas: Machine learning system design; Scheduling; Network optimization; **Employment**: Research Scientist at Meta

4. Ye Tian: 08/2018 – 05/2022; Research Areas: Crowdsourcing; Sharing economy; **Employment**: Research Scientist at Meta

5. Tianchen Zhou: 08/2018 – 02/2024; Research Areas: Reinforcement learning; Multi-armed bandits; **Employment**: Applied Research Scientist at Amazon

M.S. Students Who Continue to Pursue a Ph.D. Degree

1. Jichao (Ciao) Yu: 08/2023 – 05/2024; Research Areas: Federated learning, distributed optimization; **Next Step**: Ph.D. Student in Dept. of Computer Science, North Carolina State University

2. Zifan Zhang: 08/2021 – 05/2023; Research Areas: Reinforcement learning for wireless network optimization; **Next Step**: Ph.D. Student in Dept. of Computer Science, University of Georgia

M.S. Students in Industry

1. Cedric Le Denmat: 09/2023 – 12/2024; Research Areas: Learning theory and applications; **Employment**: Senior Machine Learning Engineer at Disney

2. Zehua Li: 09/2017 – 07/2019; Research Areas: Wireless network systems simulation and performance evaluation; **Employment**: Software Engineer at Meta

3. Zhengxiong Yuan: 08/2018 – 12/2020; Research Areas: Scheduling; Network optimization; Machine learning system design; **Employment**: Software Engineer at Oracle