Mingyi Hong

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University of Minnesota
Dept. of Electrical and Computer Engineering
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EDUCATION		
	Ph.D., Systems Engineering	**University of Virginia, 2011**
	M. A. Sc., Electrical Engineering	**Stony Brook University, 2007**
	B. Eng., Electrical Engineering	**Zhejiang University, 2005**

ACADEMIC EMPLOYMENT

University of Minnesota   8/2020–present
Associate Professor
Dept. of Electrical and Computer Engineering

University of Minnesota   8/2017–8/2020
Assistant Professor
Dept. of Electrical and Computer Engineering

Iowa State University   8/2014–7/2017
Assistant Professor
Dept. of Industrial and Manufacturing Systems Engineering
Dept. of Electrical and Computer Engineering (by courtesy)

University of Minnesota   7/2011–8/2014
Post-Doctoral Fellow and Research Assistant Professor
Dept. of Electrical and Computer Engineering

HORNORS AND AWARDS

1. **Pierre-Simon Laplace Early Career Technical Achievement Award**, IEEE Signal Processing Society, 2022
2. **Best Paper Award**, IEEE Signal Processing Society, 2021, 2022
3. **Amazon Scholar**, 2022
4. **Best Paper Runner-Up Award**, The Conference on Uncertainty in Artificial Intelligence (UAI), 2022 (top 2 of the total 712 submissions)
5. **Research Award**, Facebook (Meta) Research Award Program, 2021, 2022
6. **Best Student Paper Award (as advisor)**, NeurIPS Workshop on Scalbility, Privacy, and Security in Federated Learning, 2020
7. **Best Paper Award**, International Consortium of Chinese Mathematicians (ICCM), 2020
8. **Research Award**, IBM Faculty Research Award Program, 2020
9. **Research Award**, NSF-Intel Joint Program for Future Wireless Systems Research, 2020
10. **Best Student Paper Award (Third Place, as advisor)**, Asilomar Conference on Signals, Systems and Computers, 2018
11. **Best Paper Prize Finalist (top 3)**, Young Researchers in Continuous Optimization Program from Mathematical Optimization Society 2013, 2016
12. **The Black & Veatch Faculty Fellow**, Iowa State University, 2014-2017

RESEARCH AREA
1. Distributed Signal and Information Processing
2. Machine Learning Algorithms
3. Mathematical Optimization Theory and Applications

TEACHING
1. Spring 2019, Spring 2022, *EE 3015 Signal and System*
2. Fall 2017- Fall 2021, *EE 5239 Nonlinear Programming*
3. Spring 2017, *IE 631 Nonlinear Programming*
4. Fall 2016, 2014, *IE 312 Optimization*
5. Spring 2016, 2015, *IE 487/587 Big Data Optimization*
6. Fall 2015, *IE 341 Production System*

PATENTS
1. R. Sun, **M. Hong**, M. Baligh, Z.-Q. Luo, M. Razaviyayn, "System and Method for Transmission Point (TP) Association and Beamforming Assignment in Heterogeneous Networks", US 20130201937 A1, published
2. W.-C. Liao, Z.-Q. Luo, I. Merks, **M. Hong** and T. Zhang , "Hearing assistance device with beamformer optimized using a priori spatial information", EP2986026B1, granted, 2018
3. W.-C. Liao, **M. Hong**, Z.-Q. Luo, H. Farmanbar, X. Li, H. Zhang, "System and Method for Joint Power Allocation and Routing for Software Defined Networks", US 20150119050 , granted, 2019
4. N. Zhang, W.-C. Liao, **M. Hong**, H. Baligh and Z.-Q. Luo, "Systems and Methods for Performing Traffic Engineering In a Communications Network", International Patent Application No. PCTIB2016051777, published
5. N. Zhang, Y.-F. Liu, H. Farmanbar, T.-H. Chang, **M. Hong** and Z.-Q. Luo, "System and method for network slicing for service-oriented networks", Application number WO 2018176385A1, granted, 2021

SELECTED PUBLICATIONS
Total Google Scholar Citation: 11,924, as of Jan 2023
Full Publication List:
`https://scholar.google.com/citations?user=qRnP-p0AAAAJ&hl=en`

Mathematical Optimization
- J. Zhang, **M. Hong**, M. Wang and S. Zhang, "Primal-Dual First-Order Methods for Affinely Constrained Multi-Block Saddle Point Problems", accepted, **SIAM Journal on Optimization**, 2022
- I. Tsaknakis, **M. Hong** and S. Zhang, "Minimax problems with coupled linear constraints: computational complexity, duality and solution methods", accepted, **SIAM Journal on Optimization**, 2022
- X. Zhang, **M. Hong** and N. Elia, "Understanding a class of decentralized and federated optimization algorithms: A multi-rate feedback control perspective", accepted, **SIAM Journal on Optimization**, 2022
- **M. Hong**, H.-T. Wai, Z. Wang and Z. Yang, "A two-timescale framework for bilevel optimization: Complexity analysis and application to actor-critic", accepted, **SIAM Journal on Optimization**, 2022
- **M. Hong**, S. Zeng, J. Zhang and H. Sun, " On the divergence of decentralized non-convex optimization", accepted, **SIAM Journal on Optimization**, 2022
- J. Zhang, **M. Hong**, S. Zhang, "On lower iteration complexity bounds for the convex concave saddle point problems", **Mathematical Programming**, 2021

- D. Hajinezhad* and **M. Hong**, "Perturbed Proximal Primal Dual Algorithm for Nonconvex Nonsmooth Optimization", **Mathematical Programming** , 2019.

- **M. Hong**, "A Distributed, Asynchronous and Incremental Algorithm for Nonconvex Optimization: An ADMM Based Approach", **IEEE Transactions on Control of Network Systems**, 2017.

- **M. Hong** and Z.-Q. Luo, "On the Linear Convergence of the Alternating Direction Method of Multipliers", **Mathematical Programming Series A**, 2016

- **M. Hong**, X. Wang, M. Razaviyayn and Z.-Q. Luo, "Iteration Complexity Analysis of Block Coordinate Descent Methods", **Mathematical Programming Series A**, 2016

- **M. Hong**, Z.-Q. Luo and M. Razaviyayn, "Convergence Analysis of Alternating Direction Method of Multipliers for a Family of Nonconvex Problems", **SIAM Journal on Optimization**, 2016; [Finalist, Best Paper Prize for Young Researchers in Continuous Optimization, 2016]

- M. Razaviyayn, **M. Hong** and Z.-Q. Luo, "A Unified Convergence Analysis of Block Successive Minimization Methods for Nonsmooth Optimization", **SIAM Journal on Optimization**, 2013; [Finalist, Best Paper Prize for Young Researchers in Continuous Optimization, 2013] [ICCM Best Paper Award]

- Z. Xu, **M. Hong**, and Z.-Q. Luo, "Semidefinite approximation for mixed binary quadratically constrained quadratic programs", **SIAM Journal on Optimization**, 2014

Machine Learning & Data Analytics

- J. Zhang, Y. Zhang, **M. Hong**, R. Sun and Z.-Q. Luo, "When Expressivity Meets Trainability: Fewer than Neurons Can Work", **Proc. Neural Information Processing Systems (NeurIPS)**, 2021

- N. Shi, D. Li, **M. Hong**, R. Sun, "RMSprop converges with proper hyper-parameter", **Proc. International Conference on Learning Representation (ICLR)**, 2021, (**Spotlight, acceptance rate 3.8%**)

- X. Chen, Z. S. Wu, **M. Hong**, "Understanding Gradient Clipping in Private SGD: A Geometric Perspective", **Proc. Neural Information Processing Systems (NeurIPS)**, 2020, (**Spotlight, acceptance rate 4%**)

- S. Lu, M. Razaviyayn, B. Yang, K. Huang, **M. Hong**, "SNAP: Finding Approximate Second-Order Stationary Solutions Efficiently for Non-convex Linearly Constrained Problems, **Proc. Neural Information Processing Systems (NeurIPS)**, 2020, (**Spotlight, acceptance rate 4%**)

- X. Chen, S. Liu, R. Sun, **M. Hong**, "On the Convergence of A Class of Adam-Type Algorithms for Non-Convex Optimization", **Proc. International Conference on Learning Representation (ICLR)**, 2019, (**acceptance rate 31%**)

- **M. Hong**, J. D. Lee and M. Razaviyayn, "Gradient Primal-Dual Algorithm Converges to Second-Order Stationary Solutions for Nonconvex Distributed Optimization", **Proc. International Conference on Machine Learning (ICML)**, 2018, (**acceptance rate 24.9%**)

- X. Fu, K. Huang, N. D. Sidiropoulos, Q. Shi and **M. Hong**, "Anchor-Free Correlated Topic Modeling", **IEEE Transactions on Pattern Analysis and Machine Intelligence**, 2018.

- B. Yang, X. Fu, N. D. Sidiropoulos and **M. Hong**, "Towards K-means-friendly Spaces: Simultaneous Deep Learning and Clustering", **Proc. International Conference on Machine Learning (ICML)**, 2017

- **M. Hong**, Meisam Razaviyayn, Zhi-Quan Luo and Jong-Shi Pang, "A Unified Algorithmic Framework for Block-Structured Optimization Involving Big Data", **Feature Article**, **IEEE Signal Processing Magazine** (*equal contribution), 2016

- R. Sun* and **M. Hong**, "Improved Iteration Complexity Bounds of Cyclic Block Coordinate Descent for Convex Problems", **Proc. Neural Information Processing Systems (NeurIPS)**, 2015 (*equal contribution, **acceptance rate 21.92%**)

Distributed and Federated Learning
- G. Zhang, S. Lu, S. Liu, X. Chen, P.-Y. Chen, L. Martie, L. Horesh, **M. Hong**, "Distributed Adversarial Training to Robustify Deep Neural Networks at Scale", UAI 2022, **(Oral Presentation, acceptance rate 5%)** [Best Paper Runner-Up Award]

- P. Khanduri, P. Sharma, H. Yang, **M. Hong**, J. Liu, K. Rajawat and P. K. Varshney, "STEM: A Stochastic Two-Sided Momentum Algorithm Achieving Near-Optimal Sample and Communication Complexities for Federated Learning", **Proc. Neural Information Processing Systems (NeurIPS)**, 2021

- X. Zhang, T. Chen, W. Yin and M. Hong, "Hybrid Federated Learning: Algorithms and Implementation", NeurIPS 2020 Workshop on Scalbility, Privacy, and Security in Federated Learning (NeurIPS-SpicyFL 2020), [Best Student Paper Award]

- H.-T. Wai, Z. Yang, Z. Wang, and **M. Hong**, "Multi-Agent Reinforcement Learning via Double Averaging Primal-Dual Optimization", **Proc. Neural Information Processing Systems (NeurIPS)**, 2018, (**acceptance rate 25.1%**)

- X. Chen, T. Chen, H. Sun, Z. S. Wu, M. Hong, "Distributed Training with Heterogeneous Data: Bridging Median-and Mean-Based Algorithms", **Proc. Neural Information Processing Systems (NeurIPS)**, 2020, **(acceptance rate 20%)**

- H. Sun, S. Lu, **M. Hong**, "Improving the Sample and Communication Complexity for Decentralized Non-Convex Optimization: Joint Gradient Estimation and Tracking", **Proc. International Conference on Machine Learning, (acceptance rate 21.8%)**, 2020

- **M. Hong**, "A Distributed, Asynchronous and Incremental Algorithm for Nonconvex Optimization: An ADMM Based Approach", **IEEE Transactions on Control of Network Systems**, 2017.

- Tsung-Hui Chang*, **Mingyi Hong***⋆, Hoi-To Wai*, Xinwei Zhang and Songtao Lu, "Distributed Learning in the Non-Convex World: From Batch to Streaming Data, and Beyond", **IEEE Signal Processing Magazine**, pp 26-38, May, 2020

- Haoran Sun, **Mingyi Hong**, "Distributed Non-Convex First-Order Optimization and Information Processing: Lower Complexity Bounds and Rate Optimal Algorithm", **Prof. Asilomar Conference on Communication, Systems and Computers**, 2018; [Best Student Paper Award]

- T.-H. Chang, **M. Hong** and X. Wang, "Multi-Agent Distributed Optimization via Inexact Consensus ADM", **IEEE Transactions on Signal Processing**, Vol. 63, No. 2, pages 482-497, 2015, [IEEE SPS Best Paper Award]

Signal Processing
- H. Sun, X. Chen, Q. Shi, **M. Hong**, X. Fu and N. D. Sidiropoulos, "Learning to Optimize: Training Deep Neural Networks for Wireless Resource Management", **IEEE Transactions on Signal Processing**, 2018, [IEEE SPS Best Paper Award]

- Q. Shi, H. Sun, S. Lu, **M. Hong** and M. Razaviyayn, "Inexact Block Coordinate Descent Methods For Symmetric Nonnegative Matrix Factorization", **IEEE Transactions on Signal Processing**; 2016

- A. Garcia and **M. Hong**, "Efficient Rate Allocation in Wireless Networks Under Incomplete Information", **IEEE Transactions on Automatic Control**, Vol. 61, No. 5, pages 1397 - 1402, 2016

- M. Baligh, **M. Hong**, W.-C Liao, Z.-Q Luo, M. Razaviyayn, M. Sanjabi, and R. Sun, "Cross-Layer Provisioning of Future Cellular Networks", **IEEE Signal Processing Magazine**, special issue on 5G revolution, Vol. 31, No. 6, pages 56-68, 2014

- **M. Hong**, R. Sun, H. Baligh and Z.-Q. Luo, "Joint Base Station Clustering and Beamformer Design for Partial Coordinated Transmission in Heterogeneous Networks", **IEEE Journal on Selected Areas in Communications**, special issues on Large-Scale multiple antenna systems, Vol. 31, No. 2, pages 226-240, 2013

FULL PUBLICATIONS

Book Chapters

1. **Mingyi Hong** and Zhi-Quan Luo, "Signal Processing and Optimal Resource Allocation for the Interference Channel", **Academic Press Library in Signal Processing**, Elsevier, 2013

2. **Mingyi Hong**, Wei-Cheng Liao, Ruoyu Sun and Zhi-Quan Luo, "Optimization Algorithms for Big Data with Application in Wireless Networks", **Big Data Over Networks**, Cambridge University Press, 2014

Journal Papers (Published/Accepted)[1].

1. J. Zhang⋆, **M. Hong**, M. Wang and S. Zhang, "Primal-Dual First-Order Methods for Affinely Constrained Multi-Block Saddle Point Problems", accepted, **SIAM Journal on Optimization**, 2022

2. I. Tsaknakis+, **M. Hong**⋆ and S. Zhang, "Minimax problems with coupled linear constraints: computational complexity, duality and solution methods", accepted, **SIAM Journal on Optimization**, 2022

3. X. Zhang+, **M. Hong**⋆ and N. Elia, "Understanding a class of decentralized and federated optimization algorithms: A multi-rate feedback control perspective", accepted, **SIAM Journal on Optimization**, 2022

4. **M. Hong***, H.-T. Wai*, Z. Wang* and Z. Yang*, "A two-timescale framework for bilevel optimization: Complexity analysis and application to actor-critic", accepted, **SIAM Journal on Optimization**, 2022

5. **M. Hong**⋆, S. Zeng+, J. Zhang and H. Sun+, " On the divergence of decentralized non-convex optimization", accepted, *SIAM Journal on Optimization*, 2022

6. X. Zhang+, **M. Hong**⋆, S. Dhople, W. Yin, Y. Liu, "FedPD: A Federated Learning Framework With Adaptivity to Non-IID Data", accepted, *IEEE Transactions on Signal Processing*, 2021

7. H. Sun+, W. Pu, X. Fu, T.-H. Chang, **M. Hong**⋆, "Learning to Continuously Optimize Wireless Resource in a Dynamic Environment: A Bilevel Optimization Perspective", accepted, *IEEE Transactions on Signal Processing*, 2021

8. S. Lu$, J. Lee, M. Razaviyayn, **M. Hong** ⋆, "Linearized ADMM Converges to Second-Order Stationary Points for Non-Convex Problems", accepted, *IEEE Transactions on Signal Processing*, 2021

9. J. Zhang⋆, **M. Hong**, S. Zhang, "On lower iteration complexity bounds for the convex concave saddle point problems", *Mathematical Programming*, 1-35, 2021

10. Y. Wei, M. Zhao, **M. Hong**, M. Zhao⋆, M. Lei, "Learned conjugate gradient descent network for massive MIMO detection", *IEEE Transactions on Signal Processing*, Vol 68, pp. 6336-6349, 2020

11. M. Razaviyayn⋆, T. Huang, S. Lu, M. Nouiehed, M. Sanjabi, **M. Hong**, "Non-convex Min-Max Optimization: Applications, Challenges, and Recent Theoretical Advances", *IEEE Signal Processing Magazine*, Vol. 37, No 5, pp. 55-66, 2020

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[1]'+' Denotes student co-author (supervised by M. Hong); '$' Denotes post-doc co-author (supervised by M. Hong); '*' Equal Contribution, '⋆' corresponding author

12. S. A. H. Hosseini, B. Yaman, S. Moeller, **M. Hong** and M. Akcakaya⋆, "Dense recurrent neural networks for accelerated MRI: History-cognizant unrolling of optimization algorithms" *IEEE Journal of Selected Topics in Signal Processing*, Vol. 14, No. 6, 1280 - 1291, 2020

13. Qingjiang Shi and **Mingyi Hong**⋆, "Penalty Dual Decomposition Method For Nonsmooth Nonconvex Optimization—Part I: Algorithms and Convergence Analysis", Vol. 68, pp. 4108 - 4122, *IEEE Transactions on Signal Processing*, 2020 [DOI: 10.1109/TSP.2020.3001906]

14. Qingjiang Shi, **Mingyi Hong**⋆, Xiao Fu and Tsung-Hui Chang, "Penalty Dual Decomposition Method For Nonsmooth Nonconvex Optimization—Part II: Applications", Vol. 68, pp. 4242 - 4257, *IEEE Transactions on Signal Processing*, 2020 [10.1109/TSP.2020.3001397]

15. K. Tang, N. Kan, J. Zou, C. Li, X. Fu, **M. Hong**, H. Xiong⋆, "Multi-user Adaptive Video Delivery over Wireless Networks: A Physical Layer Resource-Aware Deep Reinforcement Learning Approach", accepted, *IEEE Transactions on Circuits and Systems for Video Technology*, 2020

16. Tsung-Hui Chang, Ying Cui, **Mingyi Hong**⋆ and Jong-Shi Pang, "Local Minimizers and Second-Order Conditions in Composite Piecewise Programming via Directional Derivatives", accepted, *Journal of Optimization Theory and Applications*, 2020

17. Tsung-Hui Chang*, **Mingyi Hong***⋆, Hoi-To Wai*, Xinwei Zhang and Songtao Lu, "Distributed Learning in the Non-Convex World: From Batch to Streaming Data, and Beyond", *IEEE Signal Processing Magazine*, pp 26-38, May, 2020, [DOI: 10.1109/MSP.2020.2970170]

18. Songtao Lu*, Ioannis Tsaknakis*, **Mingyi Hong**⋆ and Yongxin Chen, "Hybrid Block Successive Approximation for One-Sided Non-Convex Min-Max Problems: Algorithms and Applications", *IEEE Transactions on Signal Processing*, Vol. 68, pp. 3676 - 3691, 2020 DOI: 10.1109/TSP.2020.2986363]

19. H. Sun+ and **M. Hong**⋆, "Distributed Non-Convex First-Order Optimization and Information Processing: Lower Complexity Bounds and Rate Optimal Algorithms", *IEEE Transactions on Signal Processing*, Vol. 15, pp 5912 - 5928, 2019 [DOI: 10.1109/TSP.2019.2943230]

20. S. Shen, X. Chen+, M. Sadoughi, **M. Hong** and C. Hu⋆, "A Deep Learning Method for Online Capacity Estimation of Lithium-Ion Batteries", *Journal of Energy Storage*, accepted, June 2019

21. M. Razaviyayn*⋆, **M. Hong***, N. Reyhanian and Z.-Q. Luo, "A Doubly Stochastic Gauss-Seidel Algorithm for Solving Linear Equations and Certain Convex Minimization Problems", *Mathematical Programming Series B*, Vol. 176, No. 1-2, pages 465 – 496, 2019 [DOI: 10.1007/s10107-019-01404-0]

22. **M. Hong**⋆, T.-H. Chang, X. Wang, M. Razaviyayn , S. Ma and Z.-Q. Luo, "A Block Successive Upper Bound Minimization Method of Multipliers for Linearly Constrained Convex Optimization", *Mathematics of Operations Research*, accepted, April, 2019

23. D. Hajinezhad+ and **M. Hong**⋆, "Perturbed Proximal Primal Dual Algorithm for Nonconvex Nonsmooth Optimization", *Mathematical Programming Series B*, Vol. 176, No. 1-2, pages 207 – 245, 2019 [DOI: 10.1007/s10107-019-01365-4]

24. X. Fu, K. Huang, N. D. Sidiropoulos⋆, Q. Shi$ and **M. Hong**, "Anchor-Free Correlated Topic Modeling", *IEEE Transactions on Pattern Analysis and Machine Intelligence*, Vol. 41, No. 5, pages 1056 – 1071, May, 2019 [DOI: 10.1109/TPAMI.2018.2827377]

25. C. I. Kanatsoulis, X. Fu, N. D. Sidiropoulos⋆ and **M. Hong** , "Structured SUMCOR Multiview Canonical Correlation Analysis for Large-Scale Data", *IEEE Transactions on Signal Processing*, Vol. 76, No. 2, pages 306 – 319, Jan., 2019 [DOI:10.1109/TSP.2018.2878544]

26. D. Hajinezhad+, **M. Hong**⋆ and A. Garcia, "Zeroth Order Nonconvex Multi-Agent Optimization over Networks", *IEEE Transactions on Automatic Control*, Vol. 64, No. 10, pp. 3995 - 4010, 2019 [DOI:10.1109/TAC.2019.2896025]

27. H. Sun+, X. Chen+, Q. Shi$, **M. Hong**⋆, X. Fu and N. D. Sidiropoulos, "Learning to Optimize: Training Deep Neural Networks for Wireless Resource Management", *IEEE Transactions on Signal Processing*, Vol. 66, No. 20, pages 5438 – 5453, Oct. 2018 [Best Readings in Machine Learning in Communications, 2019 [2]] [IEEE SPS Best Paper] [ESI Highly Cited Paper] [DOI : 10.1109/TSP.2018.2866382]

28. Q. Shi$⋆, and **M. Hong**, "Spectral Efficiency Optimization For Millimeter Wave Multi-User MIMO Systems", *IEEE Journal on Selected Topics in Signal Processing*, Vol. 12, No. 3 pages 455 – 468, June, 2018 [DOI:10.1109/JSTSP.2018.2824246]

29. X. Li⋆, T. Zhao, R. Aurora, H. Liu and **M. Hong**, "On Faster Convergence of Cyclic Block Coordinate Descent-type Methods for Strongly Convex Minimization", *Journal of Machine Learning Research*, Vol. 184, No. 18, pages 1 – 24, 2018

30. W.-C. Liao⋆, **M. Hong**, H. Farmanbar, and Z.-Q. Luo, "A Distributed Semi-Asynchronous Algorithm for Network Traffic Engineering" *IEEE Transactions on Signal and Information Processing over Networks*, Vol. 4, No. 3, pages 436 – 450, Sept. 2018 [DOI:10.1109/TSIPN.2017.2721298]

31. Y. Zhang+, **M. Hong**⋆, E. Dall'Anese, S. Dhople, and Z. Xu, "Distributed Controllers Seeking AC Optimal Power Flow Solutions Using ADMM", *IEEE Transactions on Smart Grid*, Vol. 9, No. 5, pages 4525 – 4537, Sept, 2018 [DOI:10.1109/TSG.2017.2662639]

32. **M. Hong**⋆, "A Distributed, Asynchronous and Incremental Algorithm for Nonconvex Optimization: An ADMM Based Approach", *IEEE Transactions on Control of Network Systems*, Vol. 5, No. 3, pages 935 – 945, Sept. 2018 [DOI:10.1109/TCNS.2017.2657460]

33. M. Amin-Naseri+⋆, P. Chakraborty, A. Sharma, S. Gilbert, and **M. Hong**, "Evaluating the Reliability, Coverage, and Added Value of Crowdsourced Traffic Incident Reports from Waze" Transportation Research Record: Journal of the Transportation Research Board . 192. Vol. 2673, No. 43, pages 34-43, Aug 2018. [DOI:10.1177/0361198118790619]

34. N. Zhang, Y.-F. Liu, H. Farmanbar, T.-H. Chang, **M. Hong**, and Z.-Q. Luo⋆, "Network Slicing for Service-Oriented Networks Under Resource Constraints", *IEEE Journal on Selected Areas in Communication*, Special issue on Emerging Technologies in Software-Driven Communication, Vol. 35, No. 11, pages 2512 – 2521, Nov., 2017 [DOI:10.1109/JSAC.2017.2760147]

35. Q. Shi$⋆, H. Sun+ , Songtao Lu+ , **M. Hong** and M. Razaviyayn, "Inexact Block Coordinate Descent Methods For Symmetric Nonnegative Matrix Factorization", *IEEE Transactions on Signal Processing*, Vol. 65, No. 22, pages 5995 – 6008, Nov., 2017 [DOI:10.1109/TSP.2017.2731321]

36. S. Lu+ , **M. Hong** and Z. Wang⋆, "A Nonconvex Splitting Method for Symmetric Nonnegative Matrix Factorization: Convergence Analysis and Optimality", *IEEE Transactions on Signal Processing*, Vol. 65, No. 12,pages 3120 – 3135, June, 2017 [DOI:10.1109/TSP.2017.2679687]

37. X. Fu, K. Huang, **M. Hong**, N. D. Sidiropoulos⋆, and A. M.-C. So. "Scalable and Optimal Generalized Canonical Correlation Analysis via Alternating Optimization", *IEEE Transactions on Signal Processing*, Vol. 65, No. 16, pages 4150 – 4165, Aug. 2017 [DOI:10.1109/ICASSP.2017.7953279]

38. **M. Hong**⋆ and T.-H. Chang, "Stochastic Proximal Gradient Consensus Over Random Networks", *IEEE Transactions on Signal Processing*, Vol. 65, No. 11, pages 2933 – 2948, Feb., 2017 [DOI: 10.1109/TSP.2017.2673815]

39. M. Zhao, Y. Cai⋆, Q. Shi$, **M. Hong**, and B. Champagne, "Joint Transceiver Designs for Full-Duplex K-Pair MIMO Interference Channel with SWIPT", *IEEE Transactions on Communication*, Vol. 65, No. 2, pages 890 – 905, Feb., 2016 [DOI:10.1109/TCOMM.2016.2631523]

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[2]https://www.comsoc.org/publications/best-readings/machine-learning-communications

40. **M. Hong** and Z.-Q. Luo⋆, "On the Linear Convergence of the Alternating Direction Method of Multipliers", *Mathematical Programming Series A*, Vol. 162, No.1, pages 165 –199, 2017, [ESI Highly Cited Paper] [DOI:10.1007/s10107-016-1034-2]

41. **M. Hong**⋆, X. Wang, M. Razaviyayn and Z.-Q. Luo, "Iteration Complexity Analysis of Block Coordinate Descent Methods", *Mathematical Programming Series A*, Vol. 163, No. 1, pages 85 – 114, 2017 [DOI:doi.org/10.1007/s10107-016-1057-8]

42. Q. Shi$⋆, **M. Hong**, E. Song, Y. Cai, W. Xu, X. Gao, "Joint Source-Relay Design for Full-Duplex MIMO AF Relay Systems", *IEEE Transactions on Signal Processing*, Vol. 64, No. 23, pages 6118 – 6131, Sept. 2016 [DOI:10.1109/TSP.2016.2605074]

43. Y.-F. Liu⋆, **M. Hong** and E. Song, "Sample Approximation Based Deflation Approaches for Chance Constrained Joint Power and Admission Control", *IEEE Transactions on Wireless Communication*, Vol. 15, No. 7, pages 4535 – 4547, March, 2016 [DOI:10.1109/TWC.2016.2542240]

44. T.-H.Chang⋆, **M. Hong** and X. Wang, "Asynchronous Distributed ADMM for Large-Scale Optimization- Part I: Algorithm and Convergence Analysis", *IEEE Transactions on Signal Processing*, Vol. 64, No. 12, pages 3118 – 3130, June, 2016 [DOI: 10.1109/TSP.2016.2537261]

45. T.-H. Chang⋆, W.-C. Liao, **M. Hong** and X. Wang, "Asynchronous Distributed ADMM for Large-Scale Optimization- Part II: Linear Convergence Analysis and Numerical Performance", *IEEE Transactions on Signal Processing*, Vol. 64, No. 12, pages 3131 – 3144, June, 2016 [DOI:10.1109/TSP.2016.2537261]

46. B. Ames⋆ and **M. Hong**, "Alternating direction method of multipliers for sparse zero-variance discriminant analysis and principal component analysis", *Computational Optimization and Applications*, Vol. 64, No. 3, pages 725 – 754, 2016 [DOI:doi.org/10.1007/s10589-016-9828-y]

47. **M. Hong**⋆, Z.-Q. Luo and M. Razaviyayn, "Convergence Analysis of Alternating Direction Method of Multipliers for a Family of Nonconvex Problems", *SIAM Journal on Optimization*, Vol. 26, No. 1, pages 337 – 364, 2016, Finalist, Best Paper Prize for Young Researchers in Continuous Optimization, ICCOPT, 2016, [ESI Highly Cited Paper] [Best Paper Award (Silver), International Congress of Chinese Mathematicians] [DOI:10.1109/ICASSP.2015.7178689]

48. Q. Shi$⋆, M. Razaviyayn, **M. Hong**, and Z.-Q. Luo, "SINR Constrained Beamforming for a MIMO Multi-user Downlink System", *IEEE Transactions on Signal Processing*, Vol. 64, No. 11, pages 2920 – 2933, June, 2016 [DOI:10.1109/TSP.2016.2529590]

49. **M. Hong**⋆ Q. Li and Y.-F. Liu, "Decomposition by Successive Convex Approximation: A Unifying Approach for Linear Transceiver Design in Heterogeneous Networks", *IEEE Transactions on Wireless Communication*, No. 15, Vol. 2, pages 1377 – 1392, Feb., 2016 [DOI:10.1109/TWC.2015.2489640]

50. **M. Hong**⋆*, M. Razaviyayn*, Z.-Q. Luo and J.-S. Pang, "A Unified Algorithmic Framework for Block-Structured Optimization Involving Big Data", **Feature Article**, *IEEE Signal Processing Magazine*, Vol. 33, No. 1, pages 57 – 77, Jan. 2016 [ESI Highly Cited Paper] [DOI: 10.1109/MSP.2015.2481563]

51. Q. Shi$⋆, C. Peng, W. Xu, **M. Hong**, Y. Cai, "Energy Efficiency Optimization For MISO SWIPT Systems With Zero-Forcing Beamforming", *IEEE Transactions on Signal Processing*, Vol. 64, No. 4 pages 842 – 854, 2016 [DOI:10.1109/TSP.2015.2489603]

52. A. Garcia⋆ and **M. Hong**, "Efficient Rate Allocation in Wireless Networks Under Incomplete Information", *IEEE Transactions on Automatic Control*, Vol. 61, No. 5, pages 1397 –1402, May, 2016 [DOI:10.1109/TAC.2015.2466836]

53. R. Sun, **M. Hong** and Z.-Q. Luo⋆, "Joint Downlink Base Station Association and Power Control for Max-Min Fairness Computation and Complexity", *IEEE Journal on Selected Areas of Communications*, Vol. 33, No. 6, pages 1040–1054, June, 2015 [DOI:10.1109/JSAC.2015.2416982]

54. X. Wang, **M. Hong**, S. Ma, Z.-Q. Luo⋆, "Solving Multiple-Block Separable Convex Minimization Problems Using Two-Block Alternating Direction Method of Multipliers", *Pacific Journal on Optimization*, Vol. 11, No. 4, pages 645 – 667, 2015

55. Z. Xu⋆ and **M. Hong**, "Approximation Algorithm for A Mixed Binary Quadratically Constrained Quadratic Programming Problem", *Pacific Journal on Optimization*, Vol. 11, No. 2, pages 239 – 255, 2015

56. T.-H. Chang⋆, **M. Hong** and X. Wang, "Multi-Agent Distributed Optimization via Inexact Consensus ADMM", *IEEE Transactions on Signal Processing*, Vol. 63, No. 2, pages 482 – 497, Jan., 2015 [SPS Best Paper Award, 2021] [DOI:10.1109/TSP.2014.2367458]

57. M. Baligh, **M. Hong**, W.-C Liao, Z.-Q Luo⋆, M. Razaviyayn, M. Sanjabi, and R. Sun, "Cross-Layer Provisioning of Future Cellular Networks", *IEEE Signal Processing Magazine*, special issue on 5G revolution, Vol. 31, No. 6, pages 56 –68, 2014 [DOI: 10.1109/MSP.2014.2335237]

58. W.-C. Liao, **M. Hong**, H. Farmanba, X. Li, Z.-Q. Luo⋆ and H. Zhang, "Min Flow Rate Maximization for Software Defined Radio Access Networks", *IEEE Journal on Selected Areas in Communication*, special issue on 5G wireless networks, Vol. 23, No. 6, pages 1282- – 294, June, 2014 [DOI: 10.1109/JSAC.2014.2328171]

59. S. Ma⋆, **M. Hong**, E. Song, X. Wang and D. Sun, "Outage Constrained Robust Secure Transmission for MISO Wiretap Channel", *IEEE Transactions on Wireless Communications*, Vol. 13, No. 10, pages 5558 – 5570, Oct., 2014 [DOI:10.1109/TWC.2014.2326415]

60. J. J. E. Garzas, **M. Hong**, A. Garcia⋆, and A. Garcia-Armada, "Interference Pricing Mechanism for Downlink Multicell Coordinated Beamforming", *IEEE Transactions on Communications*, Vol. 62, No. 6, pages 1871 – 1883, June, 2014 [DOI:10.1109/TCOMM.2014.2315197]

61. Z. Xu, **M. Hong**⋆, and Z.-Q. Luo, "Semidefinite approximation for mixed binary quadratically constrained quadratic programs", *SIAM Journal on Optimization*, Vol. 24, No. 3, pages, 1265 – 1293, 2014 [DOI:10.1137/130909597]

62. W. –C. Liao, **M. Hong**, Y.-F. Liu and Z.-Q. Luo⋆, "Base Station Activation and Linear Transceiver Design for Optimal Resource Management in Heterogeneous Networks", *IEEE Transactions on Signal Processing*, Vol. 62, No. 15, pages 3939 – 3952, Aug., 2014 [DOI:10.1109/TSP.2014.2331611]

63. M. Razaviyayn, **M. Hong** and Z.-Q. Luo⋆, "A Unified Convergence Analysis of Block Successive Minimization Methods for Nonsmooth Optimization", *SIAM Journal on Optimization*, Vol. 23, No. 2, pages 1126 – 1153, 2013, Finalist, Best Paper Prize for Young Researchers in Continuous Optimization, ICCOPT, 2013, [ESI Highly Cited Paper] [DOI:10.1137/120891009]

64. Q. Li, **M. Hong**, H.-T. Wai, W.-K. Ma⋆, Y.-F. Liu, and Z.-Q. Luo, "Transmit Solutions for MIMO Wiretap Channels using Alternating Optimization and Water-Filling", *IEEE Journal on Selected Areas in Communications*, special issues on Signal Processing Techniques for Wireless Physical Layer Security. Vol. 31, No. 9, Sept., pages 1714 – 1727, 2013 [DOI:0.1109/JSAC.2013.130906]

65. **M. Hong**, Z. Xu⋆, M. Razaviyayn, and Z.-Q. Luo, "Joint User Grouping and Linear Beamforming: Complexity, Algorithms and Approximation Bounds", *IEEE Journal on Selected Areas in Communications, special issues on virtual MIMO systems*, Vol. 31, No. 10, pages 2013 – 2027, Oct., 2013 [DOI:10.1109/JSAC.2013.131005]

66. M. Razaviyayn, **M. Hong** and Z.-Q. Luo⋆, "Linear Transceiver Design for a MIMO Interfering Broadcast Channel Achieving Max-Min Fairness", *Signal Processing*, special issue on sensor array processing, Vol. 93, No. 12, pages 3327 – 3340, 2013 [DOI:10.1109/ACSSC.2011.6190228]

67. **M. Hong**, A. Garcia⋆, J. Barrera and S. Wilson, "Joint Access Point Selection and Power Allocation for Uplink Wireless Networks", *IEEE Transactions on Signal Processing*, Vol. 61, No. 13, pages 3334 – 3347, July, 2013 [DOI:10.1109/TSP.2013.2253772] #

68. **M. Hong** and Z.-Q. Luo⋆, "Distributed Linear Precoder Optimization and Base Station Selection for an Uplink Heterogeneous Network", *IEEE Transactions on Signal Processing*, Vol. 61, No. 12, pages 3214 – 3228, June, 2013 [DOI:10.1109/TSP.2013.2252169]

69. **M. Hong**, R. Sun, H. Baligh and Z.-Q. Luo⋆, "Joint Base Station Clustering and Beamformer Design for Partial Coordinated Transmission in Heterogeneous Networks", *IEEE Journal on Selected Areas in Communications*, special issues on Large-Scale multiple antenna systems, Vol. 31, No. 2, pages 226 – 240, Feb., 2013, [ESI Highly Cited Paper] [DOI:10.1109/JSAC.2013.130211]

70. Y.-F. Liu⋆, **M. Hong**, Y.-H. Dai, "Max-Min Fairness Linear Transceiver Design Problem for a Multi-User SIMO Interference Channel Is Polynomial Time Solvable", *IEEE Signal Processing Letters*, Vol. 20, No. 1, pages 27 – 30, Jan., 2013 [DOI:10.1109/LSP.2012.2227254]

71. A. Garcia⋆, **M. Hong** and J. Barrera, "Cap and Trade for Congestion Control", *Dynamic Games and Applications*, Vol. 2, No. 3, pages 280–293, 2012 [DOI:10.1007/s13235-012-0049-4]#

72. **M. Hong** and A. Garcia⋆, "Mechanism Design for Base Station Association and Resource Allocation in Downlink OFDMA Network", *IEEE Journal on Selected Areas in Communications*, special issues on Game Theory for Communication Networks, Vol. 30, No. 11, pages 2238 – 2250, 2012 [DOI:0.1109/JSAC.2012.121216] #

73. **M. Hong** and A. Garcia⋆, "Averaged Iterative Water Filling Algorithm", *IEEE Transactions on Signal Processing*, Vol. 59, No. 5, pages 2448 – 2454, Mar., 2011 [DOI:10.1109/TSP.2011.2113341] #

74. **M. Hong** and A. Garcia⋆, "Equilbirium Pricing of Interference in Cognitive Radio Networks", *IEEE Transactions on Signal Processing*, Vol. 59, No. 12, pages 6058 – 6072, June, 2011 [DOI:10.1109/TSP.2011.2165059] #

75. **M. Hong**, M. Bugallo and P. Djuric⋆, "Joint Model Selection and Parameter Estimation by Population Monte Carlo Simulation", *IEEE Journal of Selected Topics in Signal Processing*, Vol. 4, No. 3, pages 526 – 539, 2010 [DOI:10.1109/JSTSP.2010.2048385]#

Conference Papers

1. Y. Zhang, Y. Yao, P. Ram, P. Zhao, T. Chen, **M. Hong**, Y. Wang, S. Liu, "Advancing Model Pruning via Bi-level Optimization", Advances in Neural Information Processing Systems (NeurIPS), 2022

2. S. Zeng, C. Li, A. Garcia, **M. Hong**, "Maximum-Likelihood Inverse Reinforcement Learning with Finite-Time Guarantees", Advances in Neural Information Processing Systems (NeurIPS), 2022

3. B. Song, C.-Y. Yao, H.-T Wai and **M. Hong**, "Distributed Optimization for Overparameterized Problems: Achieving Optimal Dimension Independent Communication Complexity", Advances in Neural Information Processing Systems (NeurIPS), 2022

4. S. Lu, S. Zeng, X Cui, M. S. Squillante, L. Horesh, B. Kingsbury, J Liu, **M. Hong** "A Stochastic Linearized Augmented Lagrangian Method for Decentralized Bilevel Optimization", Advances in Neural Information Processing Systems (NeurIPS), 2022

5. G. Zhang, S. Lu, S. Liu, X. Chen, P.-Y. Chen, L. Martie, L. Horesh, **M. Hong**, "Distributed Adversarial Training to Robustify Deep Neural Networks at Scale", UAI 2022, **(Oral Presentation, acceptance rate 5%)** [Best Paper Runner-Up Award]

6. X. Zhang, **M. Hong**, S. Dhople, N. Elia, "A Stochastic Multi-Rate Control Framework For Modeling Distributed Optimization Algorithms", International Conference on Machine Learning (ICML), 2022

7. X. Zhang, X. Chen, **M. Hong**, S. Wu, J. Yi, "Understanding Clipping for Federated Learning: Convergence and Client-Level Differential Privacy", International Conference on Machine Learning (ICML), 2022

8. Y. Zhang, G. Zhang, P. Khanduri, **M. Hong**, S. Chang, S. Liu, "Revisiting and advancing fast adversarial training through the lens of bi-level optimization", International Conference on Machine Learning, (ICML), 2022

9. J. Zhang, Y. Zhang, M. Hong, R. Sun and Z.-Q. Luo, "When Expressivity Meets Trainability: Fewer than Neurons Can Work", **Proc. Neural Information Processing Systems (NeurIPS)**, 2021

10. P. Khanduri, P. Sharma, H. Yang, M. Hong, J. Liu, K. Rajawat and P. K. Varshney, "STEM: A Stochastic Two-Sided Momentum Algorithm Achieving Near-Optimal Sample and Communication Complexities for Federated Learning", **Proc. Neural Information Processing Systems (NeurIPS)**, 2021

11. P. Khanduri, S. Zeng, M. Hong, H.-T. Wai, Z. Wang, Z. Yang, "A near-optimal algorithm for stochastic bilevel optimization via double-momentum", **Proc. Neural Information Processing Systems (NeurIPS)**, 2021

12. S. Chen, A. Garcia, M. Hong, S. Shahrampour, "Decentralized Riemannian Gradient Descent on the Stiefel Manifold", **Proc ICML**, 2021 (**acceptance rate 21.5%**)

13. N. Shi, D. Li, **M. Hong**, R. Sun, "RMSprop converges with proper hyper-parameter", **Proc ICLR**, 2020 (Spotlight, **acceptance rate 3.8%**)

14. X. Zhang, T. Chen, W. Yin and M. Hong, "Hybrid Federated Learning: Algorithms and Implementation", NeurIPS 2020 Workshop on Scalbility, Privacy, and Security in Federated Learning (NeurIPS-SpicyFL 2020), [Best Student Paper Award]

15. X. Chen, Z. S. Wu, M. Hong, "Understanding Gradient Clipping in Private SGD: A Geometric Perspective", **Proc NeurIPS 2020** (Spotlight, acceptance rate 4%)

16. X. Chen, T. Chen, H. Sun, Z. S. Wu, M. Hong, "Distributed Training with Heterogeneous Data: Bridging Median-and Mean-Based Algorithms", **Proc. NeurIPS 2020, (acceptance rate 21.1%)**

17. HT Wai, M Hong, Z Wang and Z Yang, "Provably Efficient Neural GTD for Off-Policy Learning", **Proc. NeurIPS 2020, (acceptance rate 21.1%)**

18. S Lu, M Razaviyayn, B Yang, K Huang, M Hong, "SNAP: Finding Approximate Second-Order Stationary Solutions Efficiently for Non-convex Linearly Constrained Problems", **Proc. NeurIPS 2020** (Spotlight, acceptance rate 4%)

19. S Liu, S Lu, X Chen, Y Feng, K Xu, A Al-Dujaili, M Hong, UM O'Reilly, "Min-max optimization without gradients: Convergence and applications to black-box evasion and poisoning attacks", **Proc. International Conference on Machine Learning, (acceptance rate 21.1%)**, 2020

20. H Sun, S Lu, M Hong, "Improving the Sample and Communication Complexity for Decentralized Non-Convex Optimization: Joint Gradient Estimation and Tracking", **Proc. International Conference on Machine Learning, (acceptance rate 21.8%)**, 2020

21. Hoi-To Wai, Mingyi Hong, Zhuoran Yang, Zhaoran Wang, Kexin Tang, "Variance Reduced Policy Evaluation with Smooth Function Approximation", **Proc. NeurIPS 2019, (acceptance rate %21.1)**

22. Zhuoran Yang, Yongxin Chen, Mingyi Hong, Zhaoran Wang, "Provably Global Convergence of Actor-Critic: A Case for Linear Quadratic Regulator with Ergodic Cost", **Proc. NeurIPS 2019, (acceptance rate 21.1%)**

23. Songtao Lu, Mingyi Hong and Zhengdao Wang, "On the Sublinear Convergence of Randomly Perturbed Alternating Gradient Descent to Second Order Stationary Solutions", **Proc. International Conference on Machine Learning (ICML) 2019, (Long Talk, acceptance rate 4.5%)**

24. Xiangyi Chen, Sijia Liu, Ruoyu Sun, Mingyi Hong, "On the Convergence of A Class of Adam-Type Algorithms for Non-Convex Optimization", **Proc. International Conference on Learning Representation (ICLR)** 2019, **(acceptance rate 31%)**;

25. Sijia Liu, Pin-Yu Chen, Xiangyi Chen, Mingyi Hong, "signSGD via Zeroth-Order Oracle", **Proc. International Conference on Learning Representation (ICLR)** 2019, **(acceptance rate 31%)**

26. Haoran Sun, Mingyi Hong, "Distributed Non-Convex First-Order Optimization and Information Processing: Lower Complexity Bounds and Rate Optimal Algorithm", Asilomar Conference on Communication, Systems and Computers, 2018; [Best Student Paper Award (third prize)]

27. Haoran Sun, Ziping Zhao, Xiao Fun and Mingyi Hong, "Limited Feedback Double Directional Massive MIMO Channel Estimation: From Low-Rank Modeling to Deep Learning", Proc. SPAWC 2018

28. Zhuoran Yang, Kaiqing Zhang, Mingyi Hong and Tamer Basar, "A Finite Sample Analysis of the Actor-Critic Algorithm", Proc. CDC 2018

29. Hoi-To Wai, Zhuoran Yang, Zhaoran Wang, and Mingyi Hong, "Multi-Agent Reinforcement Learning via Double Averaging Primal-Dual Optimization", **Proc. NeurIPS 2018** (**acceptance rate 25.1%**)

30. Mingyi Hong, Jason D. Lee and Meisam Razaviyayn, "Gradient Primal-Dual Algorithm Converges to Second-Order Stationary Solutions for Nonconvex Distributed Optimization", **Proc. ICML 2018 (acceptance rate 24.9%)**

31. Mingyi Hong, Davood Hajinezhad* and Ming-Min Zhao*, "Prox-PDA: The Proximal Primal-Dual Algorithm for Fast Distributed Nonconvex Optimization and Learning Over Networks", **Proc. ICML 2017 (acceptance rate 25.1%)**

32. Bo Yang, Xiao Fu, Nicholas D. Sidiropoulos and Mingyi Hong, "Towards K-means-friendly Spaces: Simultaneous Deep Learning and Clustering", **Proc. ICML 2017 (acceptance rate 25.1%)**

33. Davood Hajinezhad*, Mingyi Hong, Tuo Zhao and Zhaoran Wang, "NESTT: A Nonconvex Primal-Dual Splitting Method for Distributed and Stochastic Optimization", **Proc. NIPS 2016**, **(acceptance rate 22.7%)**

34. Chao Hu, Mingyi Hong and Ha-Lim Jeong "On-Board Analysis of Degradation Mechanisms of Lithium-Ion Battery using Differential Voltage Analysis", Proc. ASME IDETCT conference 2016

35. Ming-Min Zhao*, Qingjiang Shi**, Mingyi Hong, Yunlong Cai, Minjian Zhao, "Joint Transceiver Design for Full-Duplex Cloud Radio Access Networks with SWIPT", Proc. WCNC 2017

36. Haoran Sun*, Xiangyi Chen*, Qingjiang Shi**, Mingyi Hong and Xiao Fu, "Learning to Optimize: Training Deep Neural Networks for Wireless Resource Management", Proc. SPAWC 2017

37. Songtao Lu*, Mingyi Hong and Zhengdao Wang, "A Stochastic Nonconvex Splitting Method for Symmetric Nonnegative Matrix Factorization", **Proc. AISTATS 2017 (acceptance rate 31.6%)**

38. Xiao Fu, Kejun Huang, Mingyi Hong, Nicholas D. Sidiropoulos, Anthony Man-Cho So, "Scalable and Flexible MAX-VAR Generalized Canonical Correlation Analysis via Alternating Optimization", Proc. ICASSP 2017

39. Qingjiang Shi and Mingyi Hong, "Penalty Dual Decomposition Method With Its Application in Signal Processing", Proc. ICASSP 2017

40. Songtao Lu*, Mingyi Hong and Zhengdao Wang, "A Nonconvex Splitting Method for Symmetric Nonnegative Matrix Factorization", Proc. ICASSP 2017

41. Xingguo Li, Tuo Zhao, Raman Aurora, Han Liu and Mingyi Hong, "An Improved Convergence Analysis of Cyclic Block Coordinate Descent-type Methods for Strongly Convex Minimization", **Proc. AISTATS 2016, (acceptance rate 30.7%)**

42. Shengyu Zhu, Mingyi Hong, Biao Chen, "Quantized Consensus ADMM for Multi-Agent Distributed Optimization", Proc. ICASSP 2016

43. Qingjiang Shi, Mingyi Hong, Enbin Song, Yunlong Cai, Weiqiang Xu, "A Penalty-BSUM approach for rate optimization in Full-Duplex MIMO Relay Networks with Relay Processing Delay", Proc. ICASSP 2016

44. Davood Hajinezhad*, Tsung-Hui Chang, Xiangfeng Wang, Qinagjiang Shi, Mingyi Hong, "Nonnegative Matrix Factorization using ADMM: Algorithm and Convergence Analysis", Proc. ICASSP 2016

45. Tsung-Hui Chang, Mingyi Hong, Wei-Cheng Liao, Xiangfeng Wang, "Asynchronous Distributed Alternating Direction Method of Multipliers: Algorithm and Convergence Analysis", Proc, ICASSP 2016

46. Davood Hajinezhad* and Mingyi Hong, "Nonconvex Alternating Direction Method of Multipliers for Distributed Sparse Principal Component Analysis", Proc. GlobalSIP 2015

47. Ruoyu Sun[†] and Mingyi Hong[†], "Improved Iteration Complexity Bounds of Cyclic Block Coordinate Descent for Convex Problems", **Proc. NIPS 2015** ([†]equal contribution, **acceptance rate 21.92%**)

48. Wei-Cheng Liao, Mingyi Hong, Ivo Merks, Tao Zhang and Zhi-Quan Luo, "Incorporating Spatial Information into Optimal Binaural Noise Supression Design for Hearing Adis", Proc. ICASSP 2015

49. Hung-Wei Tseng, Mingyi Hong and Zhi-Quan Luo, "Combining Sparse NMF with Deep Neural Network: A New Classification Based Approach for Speech Enhancement", Proc. ICASSP 2015

50. Wei-Cheng Liao, Mingyi Hong, Hamid Farmanbar and Zhi-Quan Luo, "Semi-Asynchronous Routing for Large-Scale Hierarchical Networks", Proc. ICASSP 2015

51. Mingyi Hong, Zhi-Quan Luo and Meisam Razaviyayn, "Convergence Analysis of Alternating Direction Method of Multipliers for a Family of Nonconvex Problems", Proc. ICASSP 2015

52. Meisam Razaviyayn, Mingyi Hong, Zhi-Quan Luo and Jong-Shi Pang, "Parallel Successive Convex Approximation for Nonsmooth Nonconvex Optimization", **Proc. NIPS 2014**, (**acceptance rate 24.67 %**)

53. Mingyi Hong and Hao Zhu, "Power-Efficient Operation of Wireless Heterogeneous Networks using Smart Grids", Proc. SmartGridComm, 2014

54. Mazair Sanjabi, Mingyi Hong, Meisam Razaviyayn and Zhi-Quan Luo, "Joint Base Station Clustering and Beamformer Design for Partial Coordinated Transmission using Statistical Channel State Information", Proc. SPAWC 2014

55. Tsung-Hui Chang, Mingyi Hong and Xiangfeng Wang, "Multi-agent Distributed Large-Scale Optimization by Inexact Consensus Alternating Direction Method of Multipliers", Proc. ICASSP 2014

56. Mingyi Hong, Tsung-Hui Chang, Xiangfeng Wang, Meisam Razaviyay and Shiqian Ma, Zhi-Quan Luo, "A Block Coordinate Descent Method of Multipliers: Convergence Analysis and Applications", Proc. ICASSP 2014

57. Xiangfeng Wang, Mingyi Hong, Tsung-Hui Chang, Meisam Razaviyany, Zhi-Quan Luo, "Joint Day-Ahead Power Procurement and Load Scheduling Using Stochastic Alternating Direction Method of Multipliers", Proc. ICASSP 2014

58. Wei-Cheng Liao, Mingyi Hong and Zhi-Quan Luo, "Max-Min Network Flow and Resource Allocation for Backhaul Constrained Heterogeneous Wireless Networks", Proc. ICASSP 2014

59. Hung-Wei Tseng, Srikanth Vishnubhotla, Mingyi Hong, Jinjun Xiao, Xiangfeng Wang, Zhi-Quan Luo and Tao Zhang, "A Single Channel Speech Enhancement Approach by Combining Statistical Criterion and Multi-Frame Sparse Dictionary Learning", InterSpeech 2013

60. Wei-Cheng Liao, Mingyi Hong and Zhi-Quan Luo, "Base Station Activation and LinearTransceiver Design for Utility Maximization in Heterogeneous Networks", Proc. ICASSP 2013

61. Shu-Hsien Chu, Mingyi Hong, Zhi-Quan Luo, Kelly Fitz, Martin McKinney, Tao Zhang, "Derivative-Free Optimization Of Hearing Aid Parameters", Proc. ICASSP 2013

62. Qiang Li, Mingyi Hong, Hoi-To Wai, Wing-Kin Ma, Ya-Feng Liu and Zhi-Quan Luo, "An AlternatingOptimization Algorithm for the MIMO Secrecy Capacity Problem under Sum Power Power and Per-Antenna Power Constraint", Proc. ICASSP 2013

63. Hung-Wei Tseng, Srikanth Vishnubhotla, Mingyi Hong, Jinjun Xiao, Zhi-Quan Luo and Tao Zhang, "Single channel speech denoising using Wiener plus dictionary learning approach", Proc. ICASSP 2013

64. Mingyi Hong, Meisam Razaviyayn, Ruo-Yu Sun and Zhi-Quan Luo, "Joint Transceiver Design and Base Station Clustering for Heterogeneous Networks", Proc Asilomar Conference on Signals, Systems and Computers, 2012

65. Qingjiang Shi, Meisam Razaviyayn, Mingyi Hong and Zhi-Quan Luo, "SINR Constrained Beamforming for a MIMO Multi-user Downlink System", Proc. Proc Asilomar Conference on Signals, Systems and Computers, 2012

66. Jorge Barrera, Mingyi Hong and Alfredo Garcia, "Truthful Multi-unit Conflictive Auction For Spectrum", Proc. IEEE Globecome 2013

67. Ruoyu Sun, Mingyi Hong and Zhi-Quan Luo, "Optimal Joint Base Station Assignment and Power Allocation in a Multiuser SISO Network", Proc. IEEE SPAWC 2012

68. Mingyi Hong and Zhi-Quan Luo, "Joint Linear Precoder Optimization and Base Station Selection for an Uplink MIMO Network: A Game Theoretic Approach", Proc. IEEE ICASSP 2012

69. Meisam Razaviyayn, Mingyi Hong and Zhi-Quan Luo, "Linear Transceiver Design for a MIMO Interfering Broadcast Channel Achieving Max-Min Fairness", Proc. Asilomar Conference on Signals Systems and Computers, 2011

70. Mingyi Hong, Alfredo Garcia and Jorge Barrera, "Joint Distributed Access Point Selection and Power Allocation in Cognitive Radio Networks", **Proc. IEEE INFOCOM**, 2011 (**acceptance rate 15.96%**)

71. Zhiheng Xie, Mingyi Hong, Hengchang Liu and John Stankovic, "Quantitative Uncertainty-Based Incremental Localization and Anchor Selection In Wireless Sensor Networks", Proc. ACM MSWiM 2011 (**acceptance rate 30%**)

72. Chenyang Li, Mingyi Hong, Randy Cogill and Alfredo Garcia, "An Adaptive Online Ad Auction Scoring Algorithm for Search Engine Revenue Maximization", INFORMS 2011

73. Mingyi Hong and Alfredo Garcia, Competitive Sharing of the Spetrum in Cognitive Radio Networks: A Market Equilibrium Framework", Proc. IEEE/ACM WiOPT 2010 (**acceptance rate 33.04%**)

74. Monica Bugallo, Mingyi Hong and Petar Djuric, "Marginalized Population Monte Carlo", Proc. IEEE ICASSP 2009

INVITED TALKS

1. "Recent Advances in Learning to Optimize Wireless Resources", Zhejiang University, China, Jan, 2019

2. "Recent Advances in Learning to Optimize Wireless Resources", Shanghai Jiao Tong University, China, Dec 2018

3. "Recent Advances of Zeroth-Order Optimization with Applications in Adversarial ML", IEEE GlobalSIP 2018 Symposium on Signal Processing for Adversary Machine Learning, Nov 2018

4. "Rate Optimal Methods for Distributed Non-Convex Optimization and Learning", Harvard University, ISS Seminar, Nov, 2018

5. "Rate Optimal Methods for Distributed Non-Convex Optimization and Learning", IBM AI Lab, Boston, Nov, 2018

6. "Rate Optimal Methods for Distributed Non-Convex Optimization and Learning", MIT LIDS, Nov, 2018

7. "Optimization and Signal processing", 2018 Workshop On New Computing-Driven Opportunities for Optimization, China, August 2018

8. "Rate Optimal Methods for Distributed Non-Convex Optimization and Learning", CMU ECE Department, May, 2018

9. "Rate Optimal Methods for Distributed Non-Convex Optimization and Learning", University of Wisconsin at Madison, Institute of Discovery, April, 2018

10. "Rate Optimal Methods for Distributed Non-Convex Optimization and Learning", CISS 2018, Princeton University

11. "Learning based Approach for Non-Convex Optimization and Resource Allocation", Zurich Seminar, Feb 2018

12. "Distributed and Learning Based Methods for Non-convex Optimization and Information Processing", ECE Department, Northwestern University, Jan. 2018

13. "Distributed and Learning Based Methods for Non-convex Optimization and Information Processing", IMA Data Science Seminar, University of Minnesota, Jan. 2018

14. "Distributed and Learning Based Methods for Non-convex Optimization and Information Processing", Chinese University of Hong Kong, Dec. 2017

15. "Learning to Optimize: Training Deep Neural Networks for Fast Wireless Resource Management", INFORMS 2017, Houston, Nov 2017

16. "The Proximal Primal-Dual Approach for Nonconvex Linearly Constrained Problems", 2017 DIMACS Workshop on Distributed Optimization, Information Processing, and Learning, Rutgers University, Aug 2017

17. "Learning to Optimize: Training Deep Neural Networks for Fast Wireless Resource Management", Nokia Machine Learning Workshop, Sept 2017

18. "The Proximal Primal-Dual Approach for Nonconvex Linearly Constrained Problems", Conference on Nonconvex Statistical Learning 2017, University of Southern California

19. "Optimization and Learning for Next Generation Wireless Systems", ECE Department, University of Minnesota, Mar. 2017

20. "Non-Convex Modeling and Computation for Machine Learning and Information Processing", ECE Department, UC Davis, Feb. 2017

21. "Non-Convex Optimization for Data and Information Processing", IE Department, Texas A&M University, Feb. 2017

22. "Recent Advancement in Nonconvex First-Order Primal Dual Methods: From Theory to Applications", Statistical Machine Learning Group, *Princeton University*, August 2016

23. "Does ADMM Converge for Nonconvex Problems?", *ICCOPT 2016, Japan*, August 2016

24. "A Unified Algorithmic Framework for Block-Structured Optimization Involving Big Data", The Department of Automation, *University of Science and Technology of China*, June 2016

25. "Modern first-order methods for large-scale optimization", *Modern Optimization and Application (MOA)*, invited short course, June 2016

26. "Iteration Complexity Analysis of Block Coordinate Descent Method", Math Department, *The University of Alabama*, March 2016

27. "A Unified Algorithmic Framework for Block-Structured Optimization Involving Big Data", ECEE Department, *Arizona State University*, Feburary 2016

28. "A Unified Algorithmic Framework for Block-Structured Optimization Involving Big Data", CS Department, *The Johns Hopkins University*, December 2015

29. "A Unified Algorithmic Framework for Block-Structured Optimization Involving Big Data", CS Department, *University of Iowa*, October 2015

30. "Stochastic Proximal Gradient Consensus Over Time-Varying Multi-Agent Network", *INFORMS*, Philadelphia, 2015

31. "Iteration Complexity Analysis of Block Coordinate Descent Method", *INFORMS*, Philadelphia, 2015

32. "Stochastic Proximal Gradient Consensus Over Time-Varying Multi-Agent Network", *Allerton 2015*

33. "Flexible ADMM for Block-Structured Convex and Nonconvex Optimization", *ICIAM*, Beijing, 2015

34. "A Unified Algorithmic Framework for Block-Structured Optimization Involving Big Data", ISEE Department, *Zhejiang University*, August 2015

35. "Iteration Complexity Analysis of Block Coordinate Descent Method", The State Key Laboratory of Scientific and Engineering Computing, *the Chinese Academy of Sciences*, July, 2015

36. "Convergence Analysis of Alternating Direction Method of Multipliers for a Family of Nonconvex Problems", *ISMP*, Pittsburgh 2015

37. "Flexible ADMM for Block-Structured Convex and Nonconvex Optimization", *University of Houston*, Novemeber, 2014

38. "The Block Successive Upper-Bound Minimization Methods of Multipliers", *INFORMS*, San Francisco, November, 2014

39. "Iteration Complexity Analysis of Block Coordinate Descent Method", *SIAM conference on Optimization*, San Diego, May, 2014

40. "Provision of Next-Generation Wireless Networks: A Large-Scale Optimization Approach", *Oregon State University*, Corvallis, March, 2014

41. "Large-Scale Structured Optimization: Algorithms and Applications", *Iowa State University*, Ames, February, 2014

42. "Large-Scale Structured Optimization: Algorithms and Applications", *NJIT*, Newwark, February, 2014

43. "Large-Scale Structured Optimization: Algorithms and Applications", *University of Massachusetts*, February, 2014

44. "Large-Scale Structured Optimization: Algorithms and Applications", *Texas Tech University*, Lubbock, January, 2014

45. "Base Station Activation and Linear Transceiver Design for Optimal Resource Management in Heterogeneous Networks", IMSE summer school on multi-angent systems, *University of Illinois at Urbana-Champaign*, Aug. 2013

46. "Decomposition by Successive Convex Approximation: A Unifying Approach for Linear Transceiver Design in Heterogeneous Networks", *Zhejiang University*, June. 2013

47. "Large-Scale Structured Optimization: Algorithms and Applications", Special Seminar, *University of Virginia*, April 2013

48. "Joint Base Station Clustering and Transceiver Design in Heterogeneous Networks", *Asilomar Conference on Signal, System and Computers*, November 2013

49. "Decomposition by Successive Convex Approximation: A Unifying Approach for Linear Transceiver Design in Heterogeneous Networks", Communication, Control and Signal Processing Seminar, Digital Technology Center, University of Minnesota, October 2012

50. "A Primal-Dual Algorithm for Simulation–based Computation of Cournot Equilibrium in Electricity Market", *International Symposium for Mathematical Programming (ISMP)*, Chicago, August 2009

POST DOCTORAL SCHOLAR ADVISED

- Dr. Qingjiang Shi

    Iowa State University, IMSE Department

    From Jan 2016 – March 2017

    Associate Editor for IEEE Transactions on Signal Processing, 2017 – 2020

- Dr. Prashant Khanduri

    University of Minnesota, ECE Department

    From Aug 2020 – Aug 2022

    First Job: CS Department at Wayne State University

GRADUATE STUDENTS ADVISED

- Davood Hajinezhad

    Iowa State University, IMSE Department

    Ph.D. obtained December 2017

    Recipient of **Graduate College's Research Excellence Award** at Iowa State

    First job: Post-Doctoral Fellow at Duke University

- Songtao Lu

    Iowa State University, ECE Department

    Ph.D. Aug. 2018

    Joint advised with Zhengdao Wang

    Recipient of **Graduate College's Research Excellence Award** at Iowa State

    First job: IBM T. J. Watson Research Lab

- Haoran Sun

    University of Minnesota, ECE Department

    Ph.D. June 2021

    Recipient of **Presidential Fellowship** at Iowa State

    First job: Facebook

- Yijian Zhang

    Iowa State University, IMSE Department

    Ph.D. June 2020

    First job: Data Scientist at Gap Inc.

- Mostafa Amin-Naseri

    Iowa State University, IMSE Department

    Ph.D. obtained June 2018

    Joint advised with Stephen Gilbert

- Xiangyi Chen

    University of Minnesota, ECE Department

    Ph.D. June 2022

    First job: PInterest. Inc.

UNDERGRADS ADVISED

- Andre Fristo

    Iowa State University, IMSE Department

    B. Sc., obtained June 2018

- Chase Grimm

    Iowa State University, IMSE Department

    B. Sc., obtained June 2018

Departmental Committee

- Graduate Committee, ECE Department, University of Minnesota (2021 - 2022)
- Curriculum Committee, ECE Department, University of Minnesota (2017 - 2020)
- Curriculum Committee, IMSE Department, Iowa State University (2014 - 2017)
- Faculty Search Committee, IMSE Department, Iowa State University (2016 - 2017)

PROFESSIONAL MEMBERSHIP AND SERVICES

- IEEE, IEEE Signal Processing Society member
- INFORMS, SIAM member
- Associate Editor, IEEE Transactions on Signal Processing (2021-2023)
- Member, IEEE Signal Processing Society SPCOM Technical Committee (2017-2022)
- Member, IEEE Signal Processing Society MLSP Technical Committee (2018-2021)
- Organizer of invited sessions
    - INFORMS 2015, 2016, 2017
    - Asilomar 2016
    - SPAWC 2018 special session on "Machine Learning for Communications"
- Technical Program Co-Chair
    - GlobalSIP 2016, 2017, Symposium on "Distributed Optimization and Resource Management over Networks"
- TPC member
    - IEEE SmartGridComm 2014, IEEE GlobalSIP 2015, IEEE GameNets 2016, AISTATS 2017, ICC 2018, SPAWC 2017, 2018
- Peer Review Activities
    - IEEE Transactions on Automatic Control
    - IEEE Transactions on Wireless Communications
    - IEEE Transactions on Communications

- IEEE Transactions on Mobile Computing
- IEEE Journal on Selected Areas in Communications
- IEEE Transactions on Vehicular Technology
- IEEE Transactions on Signal Processing
- IEEE Transactions on Information Theory
- IEEE Transactions on Information Forensics and Security
- IEEE Signal Processing Letters
- IEEE Communication Letters
- IEEE Wireless Communication Letters
- IEEE Access
- IEEE Transactions on Control of Network Systems
- IEEE Transactions on Networking
- IEEE Network Magazine
- EURASIP Journal on Wireless Communications and Networking
- SCIENCE CHINA Mathematics
- Mathematical Programming
- SIAM Journal on Optimization
- Optimization Methods and Software
- Operations Research
- Computational Optimization and Application
- IEEE Access
- IEEE Transactions on Control of Network Systems
- IEEE Transactions on Networking
- Mathematics of Operations Research
- Journal of Scientific Computing
- Journal of Global Optimization