Erfan Yazdandoost Hamedani

PhD · Assistant Professor

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Research Interests

Saddle point problems, Distributed Optimization, Bilevel Optimization
Machine Learning, Data Science, Artificial Intelligence

Academic Appointments

Aug 2021 - present **Assistant Professor**, Systems and Industrial Engineering Department, University of Arizona

Aug 2020 - Aug 2021 **Research Assistant Professor**, Systems and Industrial Engineering Department, University of Arizona

Education

The Pennsylvania State University *University Park, PA*

Ph.D. in Industrial Engineering and Operations Research *Aug 2015 - Aug 2020*

- Advisor: Dr. Necdet Serhat Aybat
- Minor in Statistics

University of Tehran *Tehran, Iran*

B.S. in Mathematics and Applications *Aug 2010– Feb 2015*

Research Grants

NSF, Division of Electrical, Communication and Cyber Systems
Title: "Collaborative Research: Computationally Efficient Algorithms for Large-scale Bilevel Optimization Problems"
Role: Leading PI
Duration: 09/15/2021-08/31/2024
Funding: $224,375

Publications

Accepted/Published

Yazdandoost Hamedani, E., and Aybat, N.S. 2020. A Primal-dual Algorithm with Linesearch for General Convex-Concave Saddle Point Problems. Accepted in SIAM Journal on Optimization.

Yazdandoost Hamedani, E., and Aybat, N.S., 2019. A Decentralized Primal-dual Method for Constrained Minimization of a Strongly Convex Function. Accepted in IEEE Transaction on Automatic Control.

Aybat, N.S., and **Yazdandoost Hamedani**, E., 2019. A Distributed ADMM-like Method for Resource Sharing over Time-varying Networks. SIAM Journal on Optimization 29.4: 3036-3068.

Yazdandoost Hamedani, E., and Aybat, N.S., 2017. Multi-agent Constrained Optimization of a Strongly Convex Function over Time-varying Directed Networks. 55th Annual Allerton Conference on Communication, Control, and Computing (pp. 518-525). IEEE.

Aybat, N.S., and **Yazdandoost Hamedani**, E., 2016. A Primal-dual Method for Conic Constrained Distributed Optimization Problems. In Advances in Neural Information Processing Systems (NeurIPS) (pp. 5049-5057).

Yazdandoost Hamedani, E., and Aybat, N.S., 2017. Multi-agent Constrained Optimization of a Strongly Convex Function. In Signal and Information Processing, 2017 IEEE Global Conference on (pp. 558-562). IEEE.

Aybat, N.S., and **Yazdandoost Hamedani**, E., 2016. Distributed Primal-dual Method for Multi-agent Sharing Problem with Conic Constraints. In Signals, Systems and Computers, 2016 50th Asilomar Conference on (pp. 777-782). IEEE.

Work in Progress/In Review

Yazdandoost Hamedani, E. and Jalilzadeh, A. 2020. A Stochastic Variance-reduced Accelerated Primal-dual Method for Finite-sum Saddle-point Problems. Submitted to Journal of Optimization Theory and Applications.

Jalilzadeh, A., **Yazdandoost Hamedani**, E., Aybat, N.S. and Shanbhag, U.V., 2020. A Doubly-Randomized Block-Coordinate Primal-Dual Method for Large-scale Saddle Point Problems. arXiv preprint arXiv:1907.03886. To be submitted to SIAM Journal on Optimization.

Yazdandoost Hamedani, E., Jalilzadeh, A., Aybat, N.S., and Shanbhag, U.V., 2020. Iteration Complexity of Stochastic Primal-Dual Methods for Non-bilinear Saddle Point Problems. arXiv preprint arXiv:1806.04118. To be submitted to SIAM Journal on Optimization.

Teaching Experience

Spring 2021	**Nonlinear Optimization (SIE 645)**, Instructor in Systems and Industrial Engineering Department	*University of Arizona*
Fall 2020-2021	**Engineering Management (SIE 265)**, Instructor in Systems and Industrial Engineering Department	*University of Arizona*
Fall 2014	**Linear Programming (MATH 484)**, Co-Instructor in Mathematics Department	*Penn State University*

Recent Presentations

SIAM Conference on Optimization — *Virtual*
A Stochastic Variance-reduced Accelerated Primal-dual Method for Finite-sum Saddle-point Problems — *2021*

INFORMS Annual Meeting — *Virtual*
A Doubly-randomized Block-coordinate Primal-dual Method For Large-scale Saddle Point Problems — *2020*

INFORMS Annual Meeting — *Seattle, WA*
A Distributed ADMM-like Method For Resource Sharing Over Time-varying Networks. — *2019*

INFORMS Annual Meeting — *Seattle, WA*
Iteration Complexity of Randomized Primal-dual Methods for Convex-concave Saddle Point Problems. — *2019*

PROFESSIONAL SERVICES

Session Chair

2021	**SIAM Conference on Optimization**, Algorithms for Constrained Optimization and Saddle Point Problems	*Virtual*
2020	**INFORMS Annual Meeting**, Recent Advances in Primal-dual Algorithms for Saddle-point Problems	*Virtual*

Referee Experience

Reviewer of the following Journals

- SIAM Journal on Optimization (SIOPT), Mathematics of Operations Research (MOR), Journal of Optimization Theory and Applications (JOTA), Computational Optimization and Applications (COAP), IEEE Transactions on Automatic Control (TAC).

Reviewer of the following Conferences

- International Conference on Machine Learning (ICML), Annual Conference on Neural Information Processing System (NeurIPS), IEEE Conference on Decision and Control (CDC), American Control Conference (ACC).