Arman Adibi

Research Interests

- Minimax Optimization
- Robust Optimization
- Distributed Optimization
- Hypothesis Testing
- Reinforcement Learning
- Decision Making Under Uncertainty
- Submodular Optimization
- Quickest Change Detection

Experience

2023-Now **Postdoctoral Research Associate**, Department of Electrical and Computer Engineering, Princeton University.
- Advisor: Prof. H. Vincent Poor and Prof. Sanjeev R. Kulkarni

2018-2023 **Research Assistant**, Department of Electrical & Systems Engineering, University of Pennsylvania.
- Advisor: Dr. Hamed Hassani

Education

2018–2023 **Ph.D. Electrical & Systems Engineering**
University of Pennsylvania,
Advisor: Prof. Hamed Hassani.
Thesis: **Discrete and Continuous Optimization for Collaborative and Multi-task Learning**
Thesis Committee: Prof. Sanjay Shakkottai, Prof. George J. Pappas, and Prof. Amin Karbasi

2013–2018 **B.Sc. Electrical Engineering with a Minor in Mathematics**
Isfahan University of Technology.

Honors &Awards

2018 **Lilian Beck Fellowship** , University of Pennsylvania.

2018 **The Dean's Fellowship**, University of Pennsylvania.

2017 **Third Prize**, International Mathematics Competition **(IMC)** for University Students.

Publications

-Conference Papers

- (Reinforcement Learning, Distributed Optimization) Adibi, A., Dal Fabbro, N., Schenato, L., Kulkarni, S., Poor, H. V., Pappas, G. J., Hassani, H., & Mitra, A. **" Stochastic Approximation with Delayed Updates: Finite-Time Rates under Markovian Sampling " International Conference on Artificial Intelligence and Statistics (AISTATS), 2024**.

- (Reinforcement Learning, Distributed Optimization) Adibi, A., Dal Fabbro, N., Kulkarni, S., Poor, H. V., Pappas, G. J., & Mitra, A. **"DASA: Delay-Adaptive Multi-Agent Stochastic Approximation " IEEE Conference on Decision and Control (CDC), 2024**.

- (Reinforcement Learning, Distributed Optimization) Dal Fabbro, N., Adibi, A., Mitra, A., & Pappas,G. J., **" Finite-Time Analysis of Asynchronous Multi-Agent TD Learning " American Control Conference (ACC), 2024**.

- (Deep Learning, Adversarial Robustness) Lei, E., Adibi, A., & Hassani, H., **" Score-Based Methods for Discrete Optimization in Deep Learning "** Submitted to **IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), 2024**.

-(Minimax Optimization, Distributed Learning) Adibi, A., Mitra, A., & Hassani, H., **" Min-Max Optimization under Delays " American Control Conference (ACC), 2024**.

-(Decision Making under Uncertainty, Distributed Optimization) Adibi, A., Mitra, A., Pappas, G. J., & Hassani, H., **" Collaborative Linear Bandits with Adversarial Agents: Near-Optimal Regret Bounds " Advances in Neural Information Processing Systems(NeurIPS), 2022**.

-(Adversarial Robustness, Distributed Learning) Adibi, A., Mitra, A., Pappas, G. J., & Hassani, H., **" Distributed Statistical Min-Max Learning in the Presence of Byzantine Agents " IEEE Conference on Decision and Control (CDC), 2022**.

-(Adversarial Robustness, Submodular Optimization) Adibi, A., Mokhtari, A., & Hassani, H., **" Minimax Optimization: The Case of Convex-Submodular" International Conference on Artificial Intelligence and Statistics (AISTATS), 2022** .
Spotlight in "Subset Selection in Machine Learning" Workshop, ICML 2021 .
***Oral presentation** in AISTATS 2022 (top 2% of submitted papers).*

-(Distributed Learning, Submodular Optimization) Robey, A., Adibi, A., Schlotfeldt, B., Hassani, H., & Pappas, G. J., **" Optimal Algorithms for Submodular Maximization with Distributed Constraints" Learning for Dynamics and Control (L4DC), 2021** .

-(Distributed Learning, Submodular Optimization) Adibi, A., Mokhtari, A., & Hassani, H., **" Submodular Meta-Learning " Advances in Neural Information Processing Systems(NeurIPS), 2020**.

-Journal Papers

-(Non-convex Optimization, Minimax Optimization) Naghsh, M. M., Masjedi, M., Adibi, A., & Stoica, P., **" Max-Min Fairness Design in MIMO Interference Channels: A Minorization-Maximization Approach" IEEE Transactions on Signal Processing (TSP), 2019**.

Selected Presentations

- Stochastic Approximation with Delayed Updates, 2024 INFORMS Annual Meeting.

- Delay in Reinforcment Learning, Princeton Machine Learning Theory Summer School, 2024.

- Discrete and Continuous Optimization for Collaborative and Multi-task Learning, Rutger Business School, 2024.

-Discrete Optimization in Machine Learning, CMU Machine Learning Department, 2024.

-Collaborative Linear Bandits with Adversarial Agents: Near-Optimal Regret Bounds, NeurIPS, 2022.

-Minimax Optimization: The Case of Convex-Submodular, **Oral presentation** in AISTATS 2022.

- Minimax Optimization: The Case of Convex-Submodular, **Spotlight** in "Subset Selection in Machine Learning" Workshop, ICML 2021.

-Submodular Meta-Learning, NeurIPS, 2020.

Professional Activities

-Services:

- Session Chair at Annual Conference on Information Sciences and Systems (CISS), 2024

-Memberships:

- INFORMS Student Member

-Reviewer for:

- International Conference on Machine Learning(ICML)
- International Conference on Learning Representations (ICLR)
- Conference on Neural Information Processing Systems(NeurIPS)
- International Conference on Artificial Intelligence and Statistics(AISTATS)
- IEEE International Symposium on Information Theory(ISIT)
- IEEE Transactions on Automatic Control Journal(TAC)
- IEEE Conference on Decision and Control(CDC)

- Learning for Dynamics and Control (L4DC)
- IEEE American Control Conference(ACC)

Teaching and Assistantships

Teaching Assistant, Linear System Theory,
ESE Department at UPenn.
- Dr. George J. Pappas

Teaching Assistant, Probability Theory,
ESE Department at UPenn.
- Dr. Santosh S. Venkatesh

Teaching Assistant, Applied Linear Algebra,
Math Department at Isfahan University of Technology.
- Dr. Javadi

Teaching Assistant, Signals and Systems,
ECE Department at Isfahan University of Technology.
- Dr. Khosravifard

Teaching Assistant, Fundamentals of Mathematical Analysis,
Math Department at Isfahan University of Technology.
- Dr. Gazor

Teaching Assistant, Foundations Of Mathematics,
Math Department at Isfahan University of Technology.
- Dr. Bahrami

References

Sanjeev Kulkarni, William R. Kenan, Jr. Professor of Department of Operations Research and Financial Engineering, Electrical and Computer Engineering, and Philosophy, Princeton University.
E-mail : kulkarni@princeton.edu

H. Vincent Poor, Michael Henry Strater University Professor of Operations Research and Financial Engineering, Electrical and Computer Engineering, and Applied Mathematics, Princeton University.
E-mail : poor@princeton.edu

George J. Pappas , UPS Foundation Professor of Electrical and System Engineering, and Computer Science, University of Pennsylvania.
E-mail : pappasg@seas.upenn.edu

Vahid Tarokh, Rhodes Family Distinguished Professor of Mathematics, Electrical and Computer Engineering, and Computer Science, Duke University.
E-mail : vahid.tarokh@duke.edu

Hamed Hassani, Professor of Electrical and System Engineering, Statistics, and Computer Science, University of Pennsylvania.
E-mail : hassani@seas.upenn.edu

Aritra Mitra, Professor of Electrical and Computer Engineering, North Carolina State University.
E-mail : amitra2@ncsu.edu

Aryan Mokhtari, Professor of Electrical and Computer Engineering, University of Texas at Austin.
E-mail : mokhtari@austin.utexas.edu

Taposh Banerjee, Professor of Industrial Engineering, University of Pittsburgh.
E-mail : taposh.banerjee@pitt.edu