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: Prof. 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

- (Hypothesis Testing, Quickest Change Detection) Adibi, A., Kulkarni, S., Poor, H. V., Banerjee T., & Tarokh, V. **" Asymptotically Optimal Change Detection for Unnormalized**

Pre- and Post-Change Distributions " submitted to **International Conference on Artificial Intelligence and Statistics (AISTATS), 2025**.

- (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**. - (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 Reinforcement 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, 2023.
- 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:

- Program Chair at Neural Information Processing System (NeurIPS) MusIML Workshop, 2024
- Session Chair at Annual Conference on Information Sciences and Systems (CISS), 2024

-Memberships:

- INFORMS Student Member

-Reviewer for:

- International Conference on Machine Learning(ICML)

Top reviewer for ICML 2021, and 2022.

- International Conference on Learning Representations (ICLR)

Top reviewer for ICLR 2022 and 2023.

- Conference on Neural Information Processing Systems (NeurIPS)

Top reviewer for Neurips 2021.

- International Conference on Artificial Intelligence and Statistics (AISTATS)

Top reviewer for AISTATS 2022, 2023, and 2024.

- 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.
- Prof. George J. Pappas

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

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

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

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

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