# Arman Adibi

✉ aadibi@princeton.edu • Webpage

## Research Interests

- Diffusion Models
- Reinforcement Learning
- Watermarking of LLM
- Distributed Optimization
- Decision Making Under Uncertainty
- Minimax Optimization
- Quickest Change Detection
- Submodular Optimization

## Experience

**Department of ECE, Princeton University**
*Postdoctoral Research Associate* *Sep2023-Now*
- Advisor: Prof. H. V. Poor and Prof. S. Kulkarni

- Working on Multi-agent Reinforcement Learning
- Working on Quickest Change Detection for Unnormalized Statistical Models

**Department of ESE, University of Pennsylvania**
*Research Assistant* *Sep2018-Aug2023*
- Advisor: Dr. Hamed Hassani

- Multiple projects on Robust Learning, Distributed Learning, and Submodular Optimization

**Department of ECE, Isfahan University of Technology**
*Research Assistant* *Apr2016–Sep2018*
- Advisor: Dr. Mohammad Mahdi Naghsh

- Worked on Max-Min Fairness in MIMO Wireless Communication

## Education

**2023-Current**: **Princeton University**
Postdoctoral Researcher
Advisor: Prof. H. Vincent Poor and Prof. Sanjeev Kulkarni

**2018–2023**: **University of Pennsylvania**
Ph.D. Electrical & Systems Engineering, 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**: **Isfahan University of Technology**
B.Sc. Electrical Engineering (Telecommunications System with a minor in mathematics)

## Honors &Awards

**2018**: Lilian Beck Fellowship & The Dean's Fellowship from the University of Pennsylvania

**2017**: Third Prize in **International Mathematics Competition (IMC)** for University Students

## 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.

## 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**.

## 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

**Department of ESE, University of Pennsylvania** — **Linear System Theory**
*Teaching Assistant, Dr. George J. Pappas* — *2020*

**Department of ESE, University of Pennsylvania** — **Probability Theory**
*Teaching Assistant, Dr. Santosh S. Venkatesh* — *2019*

**Math Department, Isfahan University of Technology** — **Applied Linear Algebra**
*Teaching Assistant, Dr. Javadi* — *2017*

**Math Department, Isfahan University of Technology** — **Foundations Of Mathematics**
*Teaching Assistant, Dr. Bahrami* — *2017*

**Math Department, Isfahan University of Technology** — **Mathematical Analysis**
*Teaching Assistant, Dr. Gazor* — *2016*

**ECE Department, Isfahan University of Technology** **Signals and Systems**
*Teaching Assistant, Dr. Khosravifard* *2015*

## Skills

**Programming**: C++/C, PYTHON, TENSORFLOW, PYTORCH, MATLAB, VERILOG

**Typesetting**: LaTeX, Microsoft Office

**Soft Skills**: Problem-solving, Communication Skills, Conflict Resolution, Project Management

## References

**Hamed Hassani**
Professor, Department of Electrical and System Engineering, Statistics, and Computer Science, University of Pennsylvania.
Email: hassani@seas.upenn.edu

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

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

**George J. Pappas**
UPS Foundation Professor, Department of Electrical and System Engineering, and Computer Science, University of Pennsylvania.
Email: pappasg@seas.upenn.edu

**Vahid Tarokh**
Rhodes Family Distinguished Professor, Department of Mathematics, Electrical and Computer Engineering, and Computer Science, Duke University.
Email: vahid.tarokh@duke.edu

**Aritra Mitra**
Professor, Department of Electrical and Computer Engineering, North Carolina State University.
Email: amitra2@ncsu.edu

**Aryan Mokhtari**
Professor, Department of Electrical and Computer Engineering, University of Texas at Austin.
Email: mokhtari@austin.utexas.edu

**Taposh Banerjee**
Professor, Department of Industrial Engineering, University of Pittsburgh.
Email: taposh.banerjee@pitt.edu