Department of ECSE
Rensselaer Polytechnic Institute
(+1) (518) 466 1722
mukhea5@rpi.edu
Website

ARPAN MUKHERJEE

Education

2019–present **Rensselaer Polytechnic Institute**.
- Ph.D. candidate, department of Electrical Computer & Systems Engineering
- GPA: 3.95/4
- Advisor: Ali Tajer

2017–2019 : **Indian Institute of Technology, Kharagpur**.
- M.Tech., Department of Electronics and Electrical Communication Engineering
- GPA: 9.19/10
- Advisor: Mrityunjoy Chakraborty

2013–2017 : **West Bengal University of Technology**.
- B.Tech., Department of Electronics and Communication Engineering
- GPA: 9.05/10
- Advisor: Krishanu Datta

Publications

Preprints

2024 **Risk-sensitive Bandits: Arm Mixture Optimality and Regret-efficient Algorithms**.
A. Mukherjee, M. Tatlı, Prashanth LA, K. Shanmugam and A. Tajer

2024 **Combinatorial Multi-armed Bandits: Arm Selection via Group Testing**.
A. Mukherjee, S. Ubaru, K. Murugesan, K. Shanmugam and A. Tajer

Journals

T-IT 2024 **Optimal Best Arm Identification with Fixed Confidence in Restless Bandits**, *IEEE Transaction on Information Theory (under revision)*, February 2024.
P. N. Karthik, V. Y. F. Tan, **A. Mukherjee** and A. Tajer

T-IT 2024 **Best Arm Identification in Stochastic Bandits: Beyond β-optimality**, *IEEE Transaction on Information Theory (under revision)*, January 2024.
A. Mukherjee and A. Tajer

JSAIT 2024 **Robust Causal Bandits for Linear Time-varying Models**, *IEEE Journal on Selected Areas in Information Theory (accepted for publication)*, February 2024.
Z. Yan, **A. Mukherjee**, B. Varici and A. Tajer

JSAIT 2023 **SPRT-based Efficient Best Arm Identification in Stochastic Bandits**, *IEEE Journal on Selected Areas in Information Theory, vol. 4, pp. 128-143*, July 2023.
A. Mukherjee and A. Tajer

TSP 2022 **Active Sampling of Multiple Sources for Sequential Estimation**, *IEEE Transactions on Signal Processing, vol. 70, pp.4571-4585*, July 2022.
A. Mukherjee and A. Tajer

TSP 2020 **ImdLMS: An Imputation based LMS algorithm for Linear System Identification with Missing Input Data**, *IEEE Transactions on Signal Processing, vol. 68, pp. 2370-2385*, 2020.
S. Mukhopadhyay and **A. Mukherjee**

Conferences

ISIT 2024 **BAI in Exponential Family: Efficiency and Optimality**, *Proc. International Symposium on Information Theory*, accepted for publication.
A. Mukherjee and A. Tajer

ISIT 2024 **Improved Bound for Robust Causal Bandits with Linear Models**, *Proc. International Symposium on Information Theory*, accepted for publication.
Z. Yan, **A. Mukherjee**, B. Varici and A. Tajer

ISIT 2022 **SPRT-based Best Arm Identification in Stochastic Bandits**, *Proc. International Symposium on Information Theory*, Helsinki, Finland, June 2022.
A. Mukherjee and A. Tajer

NeurIPS 2021 **Mean-based Best Arm Identification in Stochastic Bandits under Reward Contamination**, *Proc. Advances in Neural Information Processing Systems*, virtual, December 2021.
A. Mukherjee, A. Tajer, P. Das and P.-Y. Chen

ISIT 2021 **Active Binary Classification of Random Fields**, *Proc. International Symposium on Information Theory*, Melbourne, Australia, July 2021.
A. Mukherjee, A. Tajer, P. Das and P.-Y. Chen

ICASSP 2021 **Active Estimation from Multimodal Data**, *Proc. International Conference on Acoustics, Speech and Signal Processing*, Toronto, Canada, June 2021.
A. Mukherjee, A. Tajer, P. Das and P.-Y. Chen

Work Experience

06.24 – 08.24 **IBM Research**, NY.
- Research Internship
- Project: Bandit-based Exploration for Prompt Engineering in LLMs
- Collaborators: Djallel Bouneffouf, Miao Liu
- Manager: Prasanna Sattigeri

06.23 – 08.23 **IBM Research**, NY.
- Research Internship
- Project: Group testing for combinatorial bandits
- Collaborators: Shashanka Ubaru, Keerthiram Murugesan and Karthikeyan Shanmugam
- Manager: Lior Horesh

06.21 – 08.21 **IBM Research**, NY.
- Research Internship
- Project: Data-aware client selection in federated learning
- Collaborators: Theodoros Salonidis, Shiqiang Wang and Georgios Kollias
- Manager: Theodoros Salonidis

Teaching Experiences

Spring 2024 **Teaching Assistant**, *Electronic Instrumentation*, (ENGR 2300), RPI.

Fall 2023 **Teaching Assistant**, *Electronic Instrumentation*, (ENGR 2300), RPI.

Fall 2022 **Teaching Assistant**, *Electronic Instrumentation*, (ENGR 2300), RPI.

Fellowships & Awards

2022 **Winner** of the ISIT Information Theoretic Duets (along with Rajarshi Saha (Ph.D. student with Andrea Goldsmith))

2019 – 2020 Recipient of the **B. Jayant Baliga '74 Graduate Student Fellowship Award** at RPI

2017 Recipient of the **MHRD PG Fellowship** through GATE

Invited Talks

March 2024 **Stochastic Bandits: Complexity and Optimality**, *Imperial College London*, (Information Processing and Communications Lab).

March 2023 **Security and Safety in Multi-Armed Bandits**, *Vector Institute*, (University of Toronto).

Spring 2022 **Contaminated Best Arm Identification in Stochastic Bandits**, *Conference on Information Sciences and Systems (CISS) 2022*, (Princeton).

Selected Graduate Courses

- Stochastic Optimization & Reinforcement Learning
- Introduction to Optimization
- Pattern Recognition
- Distributed Systems & Sensor Networks (Learning)
- Detection & Estimation Theory
- Information Theory & Coding
- High-dimensional Statistics
- Trustworthy Machine Learning

Computer Skills

Programming Languages: Python, PyTorch, MATLAB

Academic Services

2024 Reviewer for NeurIPS 2024

2024 Reviewer for IEEE ISIT 2024

2024 Reviewer for IEEE Journal on Selected Areas in Information Theory

2023 Reviewer for AISTATS 2024

2023–2024 Reviewer for IEEE Transactions on Information Theory

2023 – 2024 Reviewer for IEEE Transactions on Mobile Computing

2023 Reviewer for IEEE ISIT 2023

2022 – 2023 Reviewer for IEEE Transactions on Communication

2022 Reviewer for AISTATS 2023

2021 Reviewer for AISTATS 2022

2021 Reviewer for AAAI 2021

2021 Reviewer for NeurIPS 2021

2019 – 2022 Reviewer for IEEE Transactions on Signal Processing

Mentoring

Fall 2023 – present **Meltem Tatlı**, first year Ph.D. student, RPI.

Fall 2022 – present **Zirui Yan**, third year Ph.D. student, RPI.

Referees

Prof. Ali Tajer
Associate Professor, Department of Electrical, Computer & Systems Engineering
Rensselaer Polytechnic Institute
✉ tajer@ecse.rpi.edu

Dr. Pin-Yu Chen
Research Scientist
IBM Research
✉ pin-yu.chen@ibm.com

Dr. Shashanka Ubaru
Research Scientist
IBM Research
✉ shashanka.ubaru@ibm.com