

RESEARCH INTERESTS

1) Randomized Algorithms for problems in Linear Algebra, Graph Theory and Machine Learning 2) Online Learning and Optimization problems (specifically online caching) 3) Machine Learning for Algorithm Design

EDUCATION

University of Massachusetts Amherst

2020–Current

Ph.D. in Computer Science, GPA: 4.0/4.0

– Advisor: Prof. Cameron Musco

Indian Statistical Institute

2015–2017

Master of Technology in Computer Science, Final Aggregate: 85.90 % (First Class with Distinction)

Jadavpur University

2009–2013

Bachelor of Engineering in Mechanical Engineering, GPA: 7.86/10.00 (First Class)

PUBLICATIONS AND PREPRINTS

(*): alphabetical ordering

1. **Sublinear Time Eigenvalue Approximation via Random Sampling.** (*) Rajarshi Bhattacharjee, Gregory Dexter, Petros Drineas, Cameron Musco and Archan Ray. *Under submission. Preprint at* [\[arxiv\]](#)
2. **Fundamental Limits on the Regret of Online Network-Caching.** Rajarshi Bhattacharjee, Subhankar Banerjee and Abhishek Sinha. *Proceedings of the ACM on the Measurement and Analysis of Computing Systems, Vol 4, No. 2, Article 25, 2020. Also published at ACM SIGMETRICS 2020* [\[PDF\]](#)
3. **Optimizing the Age-of-Information for Mobile Users in Adversarial and Stochastic Environments.** Abhishek Sinha and Rajarshi Bhattacharjee. *IEEE Transactions on Information Theory* [\[arxiv\]](#)
4. **Fundamental limits of age-of-information in stationary and non-stationary environments.** Subhankar Banerjee, Rajarshi Bhattacharjee and Abhishek Sinha. *In 2020 IEEE International Symposium on Information Theory (ISIT), 2020.* [\[arxiv\]](#)
5. **Competitive algorithms for minimizing the maximum age-of-information.** Rajarshi Bhattacharjee and Abhishek Sinha. *Workshop on Mathematical performance Modeling and Analysis (MAMA), ACM SIGMETRICS 2020.* [\[PDF\]](#)
6. **Online Algorithms for Multiclass Classification Using Partial Labels.** Rajarshi Bhattacharjee and Naresh Manwani. *Proceedings of the Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD), 2020.* [\[arxiv\]](#)

RESEARCH EXPERIENCE

University of Massachusetts Amherst

Amherst, MA

Graduate Research Assistant

Fall 2020–Current

- *Estimating eigenvalues* of matrices in sublinear time (by sampling random submatrices).
- Estimating the maximum *matching* of graphs in a streaming model using *sublinear space*
- *Designing online caching algorithms* with *machine learned advice* with provably low regret.

- Area: Algorithms, Linear Algebra, Online Learning, Machine Learning, Caching, Graph theory

Indian Institute of Technology (IIT) Madras

Chennai, India

Project Associate under Prof. Abhishek Sinha

July 2019–August 2020

- Designed Online algorithms *for caching* with sub-linear regret with almost matching lower bound.
- *Competitive online algorithms* for minimizing the *age-of-information (AoI)* for users in a communication network.
- Area: Online Learning, Machine Learning, Age-of-information

Indian Institute of Information Technology (IIIT) Hyderabad

Hyderabad, India

Research Assistant under Prof. Naresh Manwani

February 2018–May 2019

- Online learning algorithms for the weakly supervised setting of *learning with partial labels*.
- Area: Machine learning, Online Learning

INDUSTRY EXPERIENCE

Deloitte Consulting India Private Limited

Hyderabad, India

Business Analyst/Data Scientist

August 2017–December 2017

- Worked on delivering machine learning based solutions to clients.

PricewaterhouseCoopers Private Limited

Kolkata, India

Consultant

September 2013–July 2015

- Worked on development of software modules for different clients using Java, SQL.
- Interacted with clients to understand business requirements, drafted business proposals.

SCHOLARSHIPS AND AWARDS

- Awarded **Sudha and Rajesh Jha Scholarship** at UMass Amherst. (awarded to one student every year)
- **Rashi Ray Memorial Medal** for standing **First** in the order of merit in M.Tech. Computer Science at Indian Statistical Institute
- Awarded **Dean's Fellowship** along with admission to the **PhD program** in Electrical and Systems Engineering at **Boston University**. (declined offer)

SERVICE

Academic service

- **Sub-reviewer: SODA 2023, STOC 2022, WiOpt 2020.** Also helped review papers for **IEEE Transactions on Networking, IJCAI 2019.**

Other service

- **Mentorship:** Served as a **peer mentor** to incoming Ph.D. students
- Part of a group of students interacting with faculty as a part of the faculty hiring process at UMass Amherst.

RELEVANT COURSEWORK

Advanced Algorithms, Optimization, Machine Learning, Randomized Algorithms, Algorithms with Predictions

PROGRAMMING LANGUAGES

Python, Matlab, Java