Aytijhya Saha

Curriculum Vitae

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Education

2023 – Present **Master of Statistics [M.Stat]**, *Indian Statistical Institute*, Kolkata, WB, India.
- Currently in 2nd year

2020 – 2023 **Bachelor of Statistics [B.Stat] (Honours)**, *Indian Statistical Institute*, Kolkata, WB, India.
- Secured 91.10% in aggregate.
- Secured the **1st position** in the B.Stat program among a batch of 40 accomplished peers.

2018 – 2020 **Higher secondary education**, *Manindra Nath High School*, Cooch Behar, WB, India.
- Marks in Higher Secondary Examination: 98.40%
- Secured a **rank of 8** out of 11,02,921 candidates

2010 – 2018 **Secondary education**, *Sunity Academy*, Cooch Behar, WB, India.
- Marks in Secondary Examination (Madhyamik): 97.29%
- Secured a **rank of 9** out of 7,61,583 candidates

Areas of Interest

1. **Statistics:** Nonparametric Statistics, Game-theoretic statistics, High dimensional statistics.

2. **Machine Learning:** Conformal Prediction, Classification, Clustering Techniques, Multi-arm bandit, Deep learning.

Published papers

1. J. Ray Choudhury*, **A. Saha***, S. Roy, S. Dutta (2023). *Robust Classification of High-Dimensional Data using Data-Adaptive Energy Distance*. In: **European Conference on Machine Learning and Knowledge Discovery in Databases: Research Track. ECML PKDD 2023.** Lecture Notes in Computer Science, vol 14173. Springer, Cham. URL: https://doi.org/10.1007/978-3-031-43424-2_6

2. **A. Saha**, A. Ramdas (2024). *Testing Exchangeability by Pairwise Betting*. Accepted to be published at the **International Conference on Artificial Intelligence and Statistics (AISTATS), 2024. (ORAL)** URL: http://arxiv.org/abs/2310.14293

Preprints/ Working papers/ Miscellaneous articles

1. **A. Saha**, N. R. Pal (2023). Group-Feature Selection Using a Neural Network With Group Lasso Regularization and Controlled Redundancy. *Submitted at* **Neurocomputing** URL: https://arxiv.org/abs/2310.20524

2. **A. Saha**, A. Ramdas (2024). Saha and Ramdas' discussion of "Poisson-focus" by Ward, Dilillo, Eckley and Fearnhead *Submitted at* **Journal of the American Statistical Association (JASA)**

3. **A. Saha**, A. Ramdas (2024).Huber-Robust Anytime-Valid Sequential Probability Ratio Test - Working paper

Summer Internships

Summer, 2024   On-site internship at the Department of Statistics and Data Science, Carnegie Mellon University, Pittsburgh

Supervisor: *Prof. Aaditya Ramdas*, Carnegie Mellon University, Pittsburgh

Description of the work: To design an anytime valid robust sequential test.

Summer, 2023   **Program: Big Data Summer Institute (BDSI), School of Public Health, University of Michigan, Ann Arbor**

Supervisor: *Prof. Rahul Ladhania*, University of Michigan, Ann Arbor

Purpose: To study causal inference on electronic health records (EHR) data.

Summer, 2022   **Program: Summer Research Fellowship Program (SRFP)** organised by **Indian National Science Academy (INSA)**

Supervisor: *Prof. Manjunath Krishnapur*, Indian Institute of Science (IISc), Bangalore

Purpose: To study some special topics on probability theory including probability in high dimensional space, Markov Chain Monte Carlo, mixing time of Markov chains, Random walks and electrical networks, Hidden Markov Model.

Reading Projects

Spring, 2023   **Introduction to Multi-armed Bandits**

Supervisor: *Prof. Pan Xu*, Duke University, NC, USA

Other Academic Experiences

Dec 2018 - Jan 2019   Participant of **Indian Nnational Mathematical Olympiad Training Camp (INMOTC)** at *Indian Statistical Institute, Kolkata*

April - May 2019   Participant of **International Mathematical Olympiad Training Camp (IMOTC)** organized by *Homi Bhabha Centre for Science Education (HBCSE), Mumbai*

May 1 - 29, 2020   Participant (as a member of the senior batch) of **International Mathematical Olympiad Training Camp (IMOTC)** organized virtually by *Homi Bhabha Centre for Science Education (HBCSE), Mumbai*

July 5 - 9, 2021   Participant of **Mathematical Summer in Paris** (online edition) organised by *CNRS/ Université Paris-Saclay*

Academic Accolades

2023   Received **Mrs. M.R. Iyer Memorial Gold Medal** for outstanding performance in B.Stat (Hons.) program (2020-2023) from Indian Statistical Institute, Kolkata

2023   Received **Nikhilesh Bhattacharya Memorial Gold Medal** for the best performance in Statistics in B.Stat (Hons.) program (2020-2023) from Indian Statistical Institute, Kolkata

2023   Received **Usri Gangopadhyay Memorial Medal** for the best female student in B.Stat (Hons.) program (2020-2023) from Indian Statistical Institute, Kolkata

2023	Secured **overall highest marks** in every year of the B.Stat Program
2023	Shortlisted for **D. Basu Memorial Gold Medal Award** for outstanding performance in B.Stat Program
2020-2023	Received **prize money for outstanding performance in all semesters in B.Stat** where it was offered
2021 & 2022	Received **Mukul Chaudhuri Cash Award** as the best female student in both 1st year and 2nd year of B.Stat Program from Indian Statistical Institute (ISI), Kolkata
2020 - Present	**Kishore Vaigyanik Protsahan Yojana (KVPY) fellowship** recipient
2020	Received the **offer for direct admission with fellowship** in the Bachelor of Science (B.Sc) program at **Chennai Mathematical Institute**
2020	Secured **All India Rank of 16 in B.Stat Entrance Examination** of Indian Statistical Institute
2020	Ranked 8th in West Bengal Higher Secondary Examination
2020	Secured **All India Rank of 1654 in JEE Main**
2020	Secured **100 Percentile Score in Mathematics Paper in JEE Main**
2020	Secured **All India Rank of 1606 in JEE Advanced**
2020	Secured **rank 20 in West Bengal Joint Entrance Examination for Engineering (WBJEE)**
2019	Selected to compete for **European Girls' Mathematical Olympiad (EGMO)** by Homi Bhabha Centre for Science Education , Mumbai
2019	Selected as **Indian National Mathematical Olympiad (INMO) Merit Awardee**
2018-19	Selected as a **Kishore Vaigyanik Protsahan Yojana (KVPY) fellow** with **All India Rank of 388**
2018	Qualified **Regional Mathematical Olympiad (RMO)**
2018	Ranked 9th in Madhyamik (Secondary) examination

Talks & Presentations

September, 2023	Invited talk for **D. Basu Memorial Gold Medal Award**, Indian Statistical Institute, Kolkata
	Title: Navigating the Challenges of High-Dimensional Low Sample Size Data: A Two-sample Test and a Novel Classification Approach

Projects as part of Coursework

June, 2023	Group Project on **Comparative analysis to check dialysis adequacy in continuous versus intermittent saline flush for heparin free haemodialysis**, as a part of the coursework of `Statistics Comprehensive`.
	Instructors : *Prof. Debasis Sengupta* & *Prof. Bimal Roy*, ISI Kolkata
Dec, 2022	**Map Stitching using Linear Models**, as a part of the coursework of `Linear Models`.

Instructor : *Prof. Arnab Chakraborty*, *ASU*, ISI Kolkata

Made a web application in R shiny to develop a tool for stitching some satellite maps to form a whole map using linear models. [Link]

Technical / Programming Skills

Computation R (Advanced), **Python** (Advanced), **C** (Intermediate)

Markup LaTeX (Advanced), **Markdown** (Intermediate)

Web App **Shiny** in R (Intermediate)

Additional Information

Date of Birth April 13, 2002

Languages **Bengali** (Mother tongue), **English** (Fluent), **Hindi** (Fluent)

Google Scholar https://scholar.google.com/citations?user=fKv7P-wAAAAJ&hl=en

DBLP https://dblp.org/pid/350/1403.html

GitHub https://github.com/Aytijhya