

Education

- 2023 - May 2026 **The University of Iowa, Iowa City, USA,**
PhD, Statistics,
(Expected) GPA - 3.9/4.
Advisor: [Dr. Sanvesh Srivastava](#)
- 2021 - 2023 **The University of Iowa, Iowa City, USA,**
Master of Science, Statistics,
GPA - 3.8/4.
Advisor: [Dr. Sanvesh Srivastava](#)
- 2019 - 2021 **Indian Institute of Technology (IIT), Kanpur, India,**
Master of Science, Statistics,
GPA - 8.5/10.
Advisor: [Dr. Minerva Mukhopadhyay](#)
- 2016 - 2019 **St. Xavier's College (SXC), Kolkata, India,**
Bachelor of Science, Statistics,
GPA - 8.6/10.
Advisor: [Dr. Surupa Chakraborty](#)

Experience

- Aug 2023–
Ongoing **Graduate Research Assistant**, DEPARTMENT OF STATISTICS, THE UNIVERSITY OF IOWA,
Supervisor: [Dr. Sanvesh Srivastava](#).
- Developed computationally efficient Bayesian approach for prediction and fixed effects selection with mixed-effects models in high-dimensional clustered data allowing posterior uncertainty quantification.
 - Extended the compression application in modeling dependent data by leveraging random projection matrices to compress the Cholesky factor of the covariance matrix of random effects.
 - Demonstrated the advantage of the proposed method over existing penalized quasi-likelihood competitors through experiments and analysis of high-dimensional longitudinal data.
 - Implemented tree-guided feature aggregation to identify rare diagnoses encoded as ICD codes in EHR data and compared its performance with well-known regularization-based methods in application to MIMIC IV data.
- Aug 2021–
Ongoing **Graduate Teaching Assistant**, DEPARTMENT OF STATISTICS, THE UNIVERSITY OF IOWA.
- Teaching Assistant for courses like Bayesian Statistics (STAT 4520), Statistical Learning (STAT 4540), Probabilistic Statistical Learning (DATA 4750), Probability and Statistics for Engineering (STAT 2020), Statistics for Business (STAT 1030).
- Summer 2024 **Research Assistant**, DEPARTMENT OF GASTROENTEROLOGY AND HEPATOLOGY, WEILL CORNELL MEDICINE,
Supervisor: [Dr. Himel Mallick](#).
- Developed a Bayesian cooperative learning method for multimodal integration, utilizing intermediate fusion and Bayesian regularization for continuous, binary, and survival outcomes.
 - Developed a meta-network analysis method to integrate multiple microbiome studies, using concepts from multi-study machine learning and differential network analysis.
 - Conducted comprehensive benchmarking of these methods using realistic synthetic data and applied them to real-world microbiome and multi-omics datasets, including pregnancy outcomes and cancer immunotherapy response.

Research Interests

- High-dimensional repeated-measures data, multimodal data
- Generalized Bayesian methods, MCMC
- Computational Statistics

Publications

- In Submission

- 2025+ **Bayesian Compressed Mixed-Effects Models**,
Sarkar, S., Khare, K., Srivastava, S.
- 2025+ **Bayesian Cooperative Learning for Multimodal Integration**,
Roy, S., Sarkar, S.*, Paul E., Basak P., Yi N., Mallick, H.*

- Under Preparation

- 2025+ **Multi-study Meta-Analysis of Differential Microbiome Networks**,
Sarkar, S., Roy, S., Xinyang Zhang, Ali Rahanavard, Mallick, H.

Conferences & Workshops

- Aug 2025 **Invited Talk on "Bayesian Cooperative Learning for Multimodal Integration"**,
JSM 2025, Nashville, USA.
- Aug 2025 **Contributed Talk on "Bayesian Compressed Mixed-Effects Models"**,
JSM 2025, Nashville, USA.
- Apr 2025 **Lightning Talk on "Bayesian Compressed Mixed-Effects Models"**,
BAYSM 2025.
- Dec 2024 **Poster Presentation on "Bayesian Compressed Mixed-Effects Models"**,
IISA Conference 2024, Kochi, India.
- Dec 2024 **Omics Data Science Workshop**,
IISA Conference 2024, Kochi, India.

Awards

- Dec 2024 **NSF Travel Award**, - *IISA Conference 2024, Kochi, India.*
- Jul 2019 **Fr. Lafont Scholarship for Academic Performance**, - *SXC Kolkata, India.*
- July 2016 - **Department of Science and Technology, INSPIRE Scholarship**, - *Government of India.*
- July 2021

Professional Services

- Sep 2024-Present **Reviewer**, for *Electronic Journal of Statistics, Sankhya B, STAT..*
- Aug 2025 **Session Chair**, for *Invited Session on "Advances in Foundation Models and LLMs for Biomedical Data Science"*, **JSM 2025**, Nashville, USA.
- Dec 2024 **Session Chair**, for *Panel Discussion on "Breaking Down Barriers and Cultivating a Culture of Collaboration and Leadership in Statistical Sciences: Enhancing Synergy for Collective Growth"*, **IISA Conference 2024**, Kochi, India.
- Apr 2024 - Present **Treasurer**, *Statistics Student Organization*, Department of Statistics and Actuarial Science, The University of Iowa.
- Aug 2016 - **Student Member**, *Department of National Service Scheme (NSS)*, St. Xavier's College, Kolkata, India.
- Aug 2019 Led teaching initiatives for deprived young students and served old aged people as a member of this association.

* These authors contributed equally