

# Durba Bhattacharya

✉ [durba@sxccal.edu](mailto:durba@sxccal.edu)  
Date of Birth: April 1981

## Curriculum Vitae

Last Updated: May 2025

### Academic Positions

- July 2013- **Assistant Professor**, Department of Statistics, St. Xavier's College (Autonomous), Kolkata.
- Oct 2023- **Executive Editor**, Statistics and Applications (ISSN 2454-7395); <https://ssca.org.in/journal.html>
- Jan2023-  
Apr 2023 **Visiting Professor**, Chennai Mathematical Institute, Chennai, Kolkata.
- Oct 2008-  
Aug 2010 **Assistant Professor**, Department of Basic Engineering Sciences, Netaji Subhash Engineering College, Technocity, Garia.
- July 2006-  
Oct 2008 **Lecturer (Full time)**, Barrackpore Rastraguru Surendranath College, Barrackpore, West Bengal, India.
- Aug 2005-  
June2006 **Lecturer (Full time)**, Shri Shikshayatan College, Kolkata, India.

### Administrative Positions

- July 2025 – **Head of the Department**, Postgraduate Department of Data Science, St. Xavier's College (Autonomous), Kolkata.
- July 2019 –  
June 2025 **Head of the Department**, Department of Statistics, St. Xavier's College (Autonomous), Kolkata.
- July 2023 – **Internship Nodal Officer**, Arts and Science Department, St. Xavier's College (Autonomous), Kolkata.

### Education

- Dec 2018 **PhD, Statistics**, Indian Statistical Institute, Kolkata. Advisor: Professor Sourabh Bhattacharya
- Sept 2004 **MSc, Statistics**, University of Calcutta.
- July2001 **BSc (Honors), Statistics**, University of Kalyani.

### Research Interests

Bayesian Non-parametric Modelling, Statistical Genetics, Bayesian computation, Bio-statistics, Multi-objective optimization, Machine learning.

## Publications

### 2025

1. Jain R., Saha A.<sup>s</sup>, **Bhattacharya D.**, Das Gupta M., Chowdhury S.<sup>s</sup>, Daga G.<sup>s</sup>, Roychowdhury S., Gender-Based Comparative Study of Type 2 Diabetes Risk Factors in Kolkata, India: Frequentist versus Bayesian Approach in Machine Learning; EPJ Web Conf., Volume 325, 2025, International Conference on Advanced Physics for Sustainable Future: Innovations and Solutions.
2. Sen S.<sup>s</sup>, **Bhattacharya D.**, Das Gupta M., Jain R., Identifying Key Predictors of Type 2 Diabetes through Bayesian Variable Selection: A Cross-Sectional Study with Gender-Specific Insights; *Accepted* for publication as a conference proceeding in the ICDMAI2025(9th International Conference on Data Management, Analytics & Innovation).

### 2024

3. **Bhattacharya D.**, Bhattacharya S., Gene-Gene and Gene-Environment Interactions in Case-Control Studies Based on Hierarchies of Dirichlet Processes, Statistics and Applications {ISSN 2454-7395 (online)} Special Issue in Memory of Prof. C R Rao Volume 22, No. 3, December 2024.
4. Jain R., **Bhattacharya D.**, Das Gupta M. and Banerjee S., Lifestyle, BMI, Age, and Waist-To-Height Ratio as Indicators For Type 2 Diabetes Mellitus: A Gender-Based Comparative Study In Kolkata, West Bengal, India. Asian Journal of Statistical Sciences, Year: ISSN: 2582-9912; 2023, Vol.3 (2), PP.169-176; Publication: April 2024.

### 2023

5. Banisitti P.<sup>s</sup>, **Bhattacharya D.**, Unlocking the Power of AI - Delving Deep into its Applications and Implications; The Eureka Moment; Prasanta Chandra Mahalanobis Mahavidyalaya, First Edition: 2023, 14-22; Published by Levant Books, Distributed by Sarat Book Distributors, ISBN: 978-93-91741-52-5.
6. **Bhattacharya D.**, Bhattacharya S., A Nonparametric Structure Based on Hierarchical Dirichlet Processes for Studying Gene-Gene and Gene-Environment Interactions. Special Proceedings Based upon the 25th Silver Jubilee (Annual) International Conference held at the Department of Statistics, University of Jammu, Jammu & Kashmir, India on February 15 - 17, 2023; ISBN#: 978-81-950383-2- 9; pp 31-41.

### 2020

7. **Bhattacharya D.**, Bhattacharya S., Effects of Gene-Environment and Gene-Gene Interactions in Case-Control Studies: A Novel Bayesian Semiparametric Approach, February 2020, Brazilian Journal of Probability and Statistics, Vol-34, Number 1 (2020), 71-89, 10.1214/18-BJPS413.
8. Beed R., Roy A., Sarkar S., **Bhattacharya D.**, A Hybrid Multi-Objective Tour Route Optimization Algorithm Based on Particle Swarm Optimization and Artificial Bee Colony Optimization. Computational Intelligence, 25th January 2020, Computational Intelligence, Vol 36, Issue 3, 884-909, DOI: 10.1111/coin.12276

### 2019

9. Beed R., Roy A., Sarkar S., **Bhattacharya D.**, Hierarchical Multi-Objective Route Optimization for Solving Carpooling Problem, April 2020, Proceedings of the Global AI Congress 2019, Pages-377-390, DOI: 10.1007/978-981- 15-2188-1\_30

### 2018

10. **Bhattacharya D.**, Bhattacharya S., A Bayesian Semiparametric Approach to Learning About Gene-Gene Interactions in Case-Control Studies, Journal of Applied Statistics, Volume 45, 2018 - Issue 16, 2906-2928, doi.org/10.1080/02664763.2018.1444741

<sup>s</sup>student author

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## Ongoing Projects

**Project Title:** BigBayesML Laboratory under ISI, Kolkata.

**Project Objective:** To analyze large datasets in the Bayesian and model-based machine learning paradigms and compare the performances. Development of suitable efficient computational algorithms for a newly proposed robust Bayes procedure.

**Collaborators:** Dr. Sourabh Bhattacharya, ISRU, Indian Statistical Institute, Kolkata, Dr. Abhik Ghosh, ISRU, ISI, Kolkata and Dr. Trisha Maitra, Prasanta Chandra Mahalanobis Mahavidyalaya.

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## Consultancy

1. **Senco Gold and Diamond Jewellery-** Providing analytical support for their marketing and customer segmentation. (2020-2023)
2. **Kolkata Customs-** Passenger Satisfaction Survey Report under Xavier's Consulting Club. (2023)

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## Talks/ Resource Person

1. Delivered an Invited talk on "Applications of Bayesian non parametric methodologies in genetic association studies" in the 27th Annual Conference of The Society of Statistics, Computer and Applications (SSCA) INTERNATIONAL CONFERENCE on Advances of Interdisciplinary Statistics and Applications in AI & ML (AISAAM-2025) February 21-23, 2025 Organized by Department of Statistics, North-Eastern Hill University, Shillong-793022, Meghalaya.
2. Resource person at the Workshop on "Big Data Through Bayesian And Non-Bayesian Lenses" [6th Feb-7th Feb 2025] Organized by Interdisciplinary Statistical Research Unit (ISRU), Kolkata.
3. Delivered an Invited talk on "Bayesian Nonparametrics – Development and Applications with a Focus on Dirichlet Process-Based Mixture Models" at the Ninth International Conference on "Recent Trends in Statistical Theory and Applications-2024" (WSTA – 2024), organized by the Department of Statistics, School of Physical & Mathematical Sciences, University of Kerala jointly with International Statistics Fraternity (ISF), Kerala Statistical Association (KSA), and Statistics Fraternity Kerala (SFK) from 29 June - 02 July 2024.
4. Resource person at the Workshop on "Statistical Learning & Bayesian Analysis With R 2023" [20th November-1st December 2023] Organized by Interdisciplinary Statistical Research Unit (ISRU), Kolkata.
5. Delivered the J K Ghosh Memorial Endowment lecture at the "Silver Jubilee (annual) International Conference on Significance of Statistical Sciences in the Emerging Scenario" organized by the Society of Statistics, Computer and Applications (SSCA) and The Department of Statistics, University of Jammu on 15th February 2023.
6. Resource person at the workshop on "An Advanced Training Program on Bayesian Modelling and Simulation", organized by DST-CIMS, Banaras Hindu University on 6th January, 2023.
7. Resource person at the workshop on "Bayesian Inference and Computation", organized by the Interdisciplinary Statistical Research Unit, ISI, Kolkata, during 19th -23rd December, 2023.
8. Delivered an Invited talk on "A Novel Bayesian Hierarchical Testing Procedure in Studying Genetic Interactions in Case-Control Studies" at Sixth International Webinar on "Recent Trends In Statistical Theory And Applications-2022 (WSTA-2022)" in conjunction with Fifth Annual Convention of Statistics Fraternity Kerala (SFK) Indian Society for Probability and Statistics (ISPS), Kerala Statistical Association (KSA) & Department of Statistics, School of Physical and Mathematical Sciences University of Kerala, Trivandrum, India during 29th June – 1st July, 2022.
9. Presented an Invited Talk on "Dirichlet process based mixture modeling for genetic association studies" during 24th Annual Conference of SSCA (online) on "Recent Advances in Statistical Theory and Applications (RASTA-2022)", 23 – 27 February 2022 at ICAR - National Academy of Agricultural Research Management

(ICAR -NAARM), Hyderabad.

10. Delivered an Invited talk on “Bayesian Semiparametric Models in Studying Genetic Diseases” at the Seventh International Conference on Statistics for Twenty-first Century-2021 (ICSTC - 2021) organized by the International Statistics Fraternity (ISF) and Department of Statistics, University of Kerala, Trivandrum during 15 - 19 December 2021.
11. Presented Paper in the “Tenth International Triennial Calcutta Symposium on Probability & Statistics (Celebrating the Birth Centenary of Prof. H.K Nandi) ” held from 27-30 December 2018.
12. Presented Paper in the “Ninth International Triennial Calcutta Symposium on Probability & Statistics” held on 28-31 December 2015.
13. Delivered a Talk in the “International Seminar on Game Theory and its Applications to Social and Economic Networks” held at Dibrugarh University, Dibrugarh, Assam from 10-12 December 2014.

## Session Chair

1. Chaired a session in the 27th Annual Conference of The Society of Statistics, Computer and Applications (SSCA) International Conference on Advances of Interdisciplinary Statistics and Applications in AI & ML (AISAAM-2025) February 21-23, 2025 Organized by Department of Statistics, North-Eastern Hill University, Shillong-793022, Meghalaya.
2. Chaired a session in the Ninth International Conference on “Recent Trends in Statistical Theory and Applications-2024” (WSTA – 2024), June 29 - July 02, 2024, organized by the Department of Statistics, School of Physical & Mathematical Sciences, University of Kerala, jointly with International Statistics Fraternity (ISF), Kerala Statistical Association (KSA) and Statistics Fraternity Kerala (SFK).
3. Chaired a session in the Ninth International Conference on “Statistics for Twenty-first Century2023” (ICSTC-2023), 15 - 18 December 2023, organized by International Statistics Fraternity (ISF), Department of Statistics and School of Physical and Mathematical Sciences, University of Kerala, Trivandrum.
4. Chaired a session in the Eighth International Conference on “Recent Trends in Statistical Theory and Applications-2023 (WSTA – 2023), June 29 - July 02, 2023, organized by the Department of Statistics, School of Physical & Mathematical Sciences, University of Kerala jointly with Indian Society for Probability and Statistics (ISPS), Kerala Statistical Association (KSA) and Statistics Fraternity Kerala (SFK)
5. Chaired a Special Invited Session at the Sixth International Webinar on RECENT TRENDS IN STATISTICAL THEORY AND APPLICATIONS-2022 (WSTA-2022) in conjunction with Fifth Annual Convention of Statistics Fraternity Kerala (SFK) Indian Society for Probability and Statistics (ISPS), Kerala Statistical Association (KSA) & Department of Statistics, School of Physical and Mathematical Sciences University of Kerala, Trivandrum, India during on 1st July, 2022.
6. Chaired a Session at the Seventh International Conference on Statistics for Twenty-first Century2021 (ICSTC - 2021) organized by the International Statistics Fraternity (ISF) and Department of Statistics, University of Kerala, Trivandrum from 15 - 19 December 2021.

## Teaching

### St. Xavier’s College (Autonomous), Kolkata.

- Linear Algebra
- Descriptive Statistics
- Sample Survey
- Multivariate Techniques
- Economic Statistics
- Bayesian Data Analysis

### Chennai Mathematical Institute

- Bayesian Data Analysis

### Netaji Subhash Engineering College, Technocity

- Numerical Analysis
- Operations Research.

### Barrackpore Rashtraguru Surendranath College

- Descriptive statistics
- Probability

### Shri Shikshayatan College

- Descriptive statistics
- Probability

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## Professional Service

### St. Xavier's College (Autonomous), Kolkata

- 2019- Member, Programme and Publication Committee.  
2019 - Member, Student's Advisory Committee.

### Statistical Associations

- 2023 - Member of the Society of Statistics, Computer and Applications (SSCA)

### Workshops and Conferences

- Jan 2025 Program Chair, **ICDMAI 2025**  
July 2024 Convener, Workshop on “**Data-Driven Decision-Making in Research**” organized jointly by the Department of Statistics and Department of Sociology, St. Xavier's College (Autonomous), Kolkata.  
Aug 2023 Convener, **Data Summit 2024**, St. Xavier's College (Autonomous), Kolkata.  
Dec 2019 Convener, National Seminar On “**Applications of Statistics in Natural Sciences**” during December 16-17, 2019 at St. Xavier's College (Autonomous), Kolkata and in collaboration with IUCAA Centre for astronomy Research and Development (ICARD), Kolkata.  
July 2019 Convener, One day National Seminar on “**Data Science –The Key to the Future**” at St. Xavier's College (Autonomous), Kolkata.on 22nd July 2019