

Name: Dr. Durba Bhattacharya

Head, Department of Statistics and Postgraduate Department of Data Science.

Executive Editor, Statistics and Applications (ISSN 2454-7395); <https://ssca.org.in/journal.html>

Qualification: PhD in Statistics, Indian Statistical Institute, Kolkata (2019)
M.Sc. in Statistics, University of Calcutta (2004)

Doctoral Research Topic: "Bayesian Nonparametric Approaches to Investigating Gene-Gene and Gene-Environment Interactions in Case-Control Studies".

Email Id: durba@sxccal.edu

Teaching Experience: 19 years of teaching experience.
Visiting Professor, Chennai Mathematical Institute (Jan-Apr 2023)

Research Interests:

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

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.

Publications:

- 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 Department of Statistics, University of Jammu, Jammu & Kashmir, India during February 15 - 17, 2023; ISBN#: 978-81-950383-2-9; pp 31-41.
- 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
- 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
- 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

- “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
- “A Non-Gaussian, Nonparametric Structure for Gene-Gene and Gene-Environment Interactions in Case-Control Studies Based on Hierarchies of Dirichlet Processes”- arXiv.org

Participation in Conferences and Workshops

- Chaired a session in the Ninth International Conference on “Statistics for Twenty-first Century-2023” (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.
- 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.
- 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 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)
- 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**.
- 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**.
- Resource person at the workshop on “Bayesian Inference and Computation”, organized by the Interdisciplinary Statistical research Unit, ISI, Kolkata, during **19th-23rd December, 2023**.
- 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**.
- Chaired a Special Invited Session 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 on **1st July, 2022**.
- Presented an Invited Talk on “Dirichlet process based mixture modelling 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.

- 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**.
- Chaired a Session 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**.
- Presented Paper in the “Tenth International Triennial Calcutta Symposium on Probability & Statistics (Celebrating the Birth Centenary of Prof. H.K Nandi) ” held during **27-30 December, 2018**.
- Presented Paper in the “Ninth International Triennial Calcutta Symposium on Probability & Statistics” held during **28-31 December, 2015**.
- Delivered a Talk in the “International Seminar on Game Theory and its Applications to Social and Economic Networks” held at Dibrugarh University, Dibrugarh, Assam during **10-12 December, 2014**.

Consultancy

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