CURRICULUM VITAE

INDRANIL MUKHOPADHYAY

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University of Nebraska-Lincoln
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POSITIONS HELD

Mar 2024 – till date	**Professor**, Department of Statistics, University of Nebraska-Lincoln, USA
June 2021 – Feb 2024	**Professor,** Human Genetics unit, Indian Statistical Institute, India
April 2019 – May 2021	**Professor & Head,** Human Genetics unit, Indian Statistical Institute, India
July 2013 – Mar 2019	**Associate Professor**, Human Genetics unit, Indian Statistical Institute, India
Oct 2008-June 2013	**Assistant Professor**, Human Genetics unit, Indian Statistical Institute, India
Oct 2006-Oct 2008	**Reader**, Department of Statistics, University of Burdwan, India
Jan 2004-Sep 2006	**Post doctoral research fellow**, Department of Human Genetics, University of Pittsburgh, USA
Jul 2001-Dec 2003	**Senior Lecturer**, Department of Statistics, University of Burdwan, India
Jun 2001	**Lecturer**, Department of Statistics, University of Burdwan, India
Sep 1997-May 2001	**Part-time Lecturer**, Department of Statistics, University of Burdwan, India
Jul 1995 - Jun 2001	**Lecturer**, Department of Statistics, St. Xavier's College, Kolkata, India

2018 – till date	**Adjunct Professor,** Regional Centre of Biotechnology, Delhi, India
2022	**Visiting Professor**, Department of Statistics, Rajiv Gandhi University, India
2018, 2020-2022	**Visiting Professor**, Department of Statistics, University of Calcutta, India
2019	**Visiting Professor,** Department of Statistics, Glasgow University, Scotland
2014, 2016	**Visiting Professor,** Department of Statistics, University of Missouri-Columbia, Missouri, USA
2013	**Visiting Professor,** Department of Statistics, Harvard University, USA

EDUCATION

2004-2006 **Post doctoral research fellow**, Department of Human Genetics, University of Pittsburgh
- Subject: Statistical Genetics
- Advisor: Prof. Daniel E. Weeks

2002 **Ph.D. in Statistics**, University of Calcutta, Kolkata, India
- Thesis: On Some Large Sample Problems in Time Series Analysis
- Advisor: Prof. Adhir Kumar Basu

1991 **M.Sc. in Statistics**, University of Calcutta, Kolkata, India
- Specialization: Advanced Multivariate Analysis, Stochastic Process, Operation Research

1989 **B.Sc.**, Presidency College, Kolkata, India
- Honours (major) in Statistics, Minors: Mathematics and Physics

PUBLICATIONS

Submitted

1. Mritunjoy Barman, Madeline Morrison, Nikhitha Gangavarapu, Thomas Davis, Jeff Bradshaw, Nathan Mueller, Stephen Wegulo, **Indranil Mukhopadhyay**, Gary Hein, Satyanarayana Tatineni, Shaonpius Mondal (2025): Incidence of Wheat Curl Mite-Transmitted Viruses in Major Cereal Crops: Potential Roles of Cover and Forage Cereal Crops in the Continuum of Wheat Streak Mosaic Disease Complex. ***Submitted to*** **Plant Disease.**

Manuscript published

2. Kiruthiga Mone, Shraddha Singh, Fatema Abdullatif, Meghna Sur, Mahima T. Rasquinha, Javier Seravalli, Denise K. Zinniel, **Indranil Mukhopadhyay**, Raul G. Barletta, Teklab Gebregiworgis, Jay Reddy (2025): Immunization with Complete Freund's Adjuvant Reveals Trained Immunity-like Features in A/J Mice. ***Vaccines***; 13(7):768. https://doi.org/10.3390/vaccines13070768.
3. Nilanjan Chatterjee, **Indranil Mukhopadhyay**, Parag Nigam, Bilal Habib (2023): Predicting carrying capacity of a large carnivore from prey densities: a new approach. ***PeerJ***. 11:e15914. doi: 10.7717/peerj.15914. PMID: 38025689; PMCID: PMC10676078
4. Tristan Mary-Huard, Sarmistha Das, **Indranil Mukhopadhyay**, Stephane Robin (2022): Querying multiple sets of P-values through composed hypothesis testing. ***Bioinformatics***. 38(1):141-148. https://doi.org/10.1093/bioinformatics/btab59
5. Sanjib Kumar Gupta, **Indranil** Mukhopadhyay, Aditya Chatterjee (2022): Two-dimensional extended warranty length design from incomplete warranty data based on a new price curve considering different maintenance policies. ***Computers and Industrial Engineering.*** 170:108323
6. Sarmistha Das, **Indranil Mukhopdhyay** (2021): TiMEG: an integrative statistical method for partially missing multi-omics data. ***Scientific Reports***.11(1):24077. doi:10.1038/s41598-021-03034-z
7. Pronoy Kanti Mondal, Udit Surya Saha, **Indranil Mukhopadhyay** (2021): PseudoGA: Cell pseudotime reconstruction based on genetic algorithm. ***Nucleic Acids Research.*** 49(14)
8. Sarmistha Das, Pramit Ghosh, Sandip Banerjee, Saumyadipta Pyne, **Indranil Mukhopadhyay** (2021): Determination of critical community size from an HIV/AIDS model. ***PLOS ONE.*** 16(1): e0244543
9. Rasmika Billa, Mohammad Abdul Razzaq, **Indranil Mukhopadhyay**, Santanu Mandal (2021): Scheduling for healthcare centre for COVID-19: deep learning and genetic algorithm approach. 2021 **IEEE International Conference on Health, Instrumentation & Measurement, and Natural Sciences** (InHeNce), IEEE | DOI: 10.1109/InHeNce52833.2021.9537264
10. Bikram Karmakar, **Indranil Mukhopadhyay** (2020): Statistical Validity and Consistency of Big Data Analytics: A General Framework. ***Statistics and Applications.*** 18(2):369-381.
11. Meghana Aruru, Raanan Gurewitsch, Sarmistha Das, Pramit Ghosh, Bandana Sen,

Indranil Mukhopadhyay, Saumyadipta Pyne (2020): A data-driven approach to COVID-19: Resources, policies, and best practices. ***BLDE University Journal of Health Sciences***. 5(2):226-231.

12. Sarmistha Das, Pramit Ghosh, Bandana Sen, Saumyadipta Pyne, **Indranil Mukhopadhyay** (2020): Critical Community Size for COVID-19: A Model Based Approach for Strategic Lockdown Policy. ***Statistics and Applications***. 18(1):181-196.
13. Bikram Karmakar, Sarmistha Das, Soham Bhattacharya, Rohan Sarkar, **Indranil Mukhopadhyay** (2019): Tight clustering for large datasets with an application to gene expression data. ***Scientific Reports.*** 9:3053, https://doi.org/10.1038/S41598-019-39459-W
14. Bikram Karmakar, **Indranil Mukhopadhyay** (2019): Risk Efficient Sequential Estimation of Multivariate Random Coefficient Autoregressive Process. ***Sequential Analysis***. 38(1): 26-45.
15. Sarmistha Das, Partha Pratim Majumder, Raghunath Chatterjee, Aditya Chatterjee, **Indranil Mukhopadhyay** (2019): A powerful method to integrate genotype and gene expression data for dissecting the genetic architecture of a disease. ***Genomics***. 11: 1387-1394. https://doi.org/10.1016/j.ygeno.2018.09.011
16. Sk Shahid Nadim, Sudip Samanta, Nikhil Pal, Ibrahim M. Elmojtaba, **Indranil Mukhopadhyay**, Joydev Chattopadhyay (2018): Impact of predator signals on the stability of a predator-prey system - a Z-control approach. ***Differential Equations and Dynamical Systems.*** https://doi.org/10.1007/s12591-018-0430-x
17. Sarmistha Das, Pronoy Kanti Mondal, Saurabh Ghosh, **Indranil Mukhopadhyay** (2018): Family based genome wide association of inflammation biomarkers and fenofibrate treatment response in GOLDN study. ***BMC Proceedings*** **(Suppl 9)**:41. doi: 10.1186/s12919-018-0146-5
18. Hemant Kulkarni, **Indranil Mukhopadhyay**, Saurabh Ghosh (2018): Transmission-based association mapping of triglyceride levels in a longitudinal framework using quasi-likelihood. ***BMC Proceedings*** 12 (Suppl 9):39 https://doi.org/10.1186/s12919-018-0147-4
19. Bikram Karmakar, **Indranil Mukhopadhyay** (2017): Risk efficient estimation of fully dependent random coefficient autoregressive models of general order. ***Communications in Statistics-Theory and Methods***, 47(17): 4242-4253. https://doi.org/10.1080/03610926.2017.1371758
20. Das Ghosh D, Mukhopadhyay I, Bhattacharya A, Roy Chowdhury R, Mandal NR, Roy S, Sengupta S (2017): Impact of genetic variations and transcriptional alterations of HLA class I genes on cervical cancer pathogenesis. ***International Journal of Cancer,*** **140(11),** 2498-2508, doi: 10.1002/ijc.30681.
21. Aditi Chandra, Anirudhya Lahiri, Swapan Senapati, Baidehi Basu, Saurabh Ghosh, **Indranil Mukhopadhyay**, Akhilesh Behra, Somenath Sarkar, Gobinda Chatterjee, Raghunath Chatterjee (2016): Increased Risk of Psoriasis due to combined effect of HLA-Cw6 and LCE3 risk alleles in Indian population. ***Scientific Reports,*** **6**, doi:10.1038/srep24059
22. Suddhasil Mookherjee, Deblina Banerjee, Subhadip Chakraborty, **Indranil Mukhopadhyay**, Abhijit Sen, Kunal Ray (2016): Evaluation of the IL1 Gene Cluster Single Nucleotide Polymorphisms in Primary Open-Angle Glaucoma Pathogenesis. ***Genetic Testing and Molecular Biomarkers*****,** DOI: 10.1089/gtmb.2015.034
23. Amrendra Kumar, Sudipta Das, Anurag Agrawal, **Indranil Mukhopadhyay**, Balaram Ghosh (2015): Genetic association of key Th1/Th2 pathway candidate genes, IRF2, IL6, IFNGR2, STAT4 and IL4RA, with atopic asthma in the Indian population. ***Journal of Human Genetics***, 2015 May 21. doi: 10.1038/jhg.2015.45.

24. Sayantan Datta, Anindita Ray, Richa Singh, Pinaki Mondal, Analabha Basu, Navonil De Sarkar, Mousumi Majumder, Guruparasad Maiti, Aradhita Baral, Ganga Nath Jha, **Indranil Mukhopadhyay**, Chinmay Panda, Shantanu Chowdhury, Saurabh Ghosh, Susanta Roychoudhury, Bidyut Roy (2015): Sequence and expression variations in 23 genes involved in mitochondrial and non-mitochondrial apoptotic pathways and risk of oral leukoplakia and cancer. ***Mitochondrion***, **25**, 28–33
25. Gopaldeb Chattopadhyay, **Indranil Mukhopadhyay** (2015): On a class of partially sequential two-sample test procedures for multivariate continuous data. ***Statistics***, **49 (2),** http://dx.doi.org/10.1080/02331888.2014.960868
26. Navonil De Sarkar, Roshni Roy, Jit Kumar Mitra, Sandip Ghose, Arnab Chakraborty, Ranjan Rashmi Paul, **Indranil Mukhopadhyay**, Bidyut Roy (2014): A quest for miRNA bio-marker: a track back approach from gingivo buccal cancer to two different types of precancers. ***PLoS ONE*, 9(8), e104839**
27. Roshni Roy, Navonil De Sarkar, Sandip Ghose, Ranjan R Paul, Anindita Ray, **Indranil Mukhopadhyay**, Bidyut Roy (2014): Association between risk of oral precancer and genetic variations in microRNA and related processing genes. ***Journal of Biomedical Science***, **21**:48, http://www.jbiomedsci.com/content/21/1/48
28. Piyali Datta Chakraborty, Sutapa Goswami, Sudipta Bera, **Indranil Mukhopadhyay** (2014): Quantitation of polydeoxyribonucletides (PDRNs) in human placental extract by fluorescence spectroscopy using ethidium bromide. ***American Journal of Analytical Chemistry*, 5,** 784-795, http://dx.doi.org/10.4236/ajac.2014.512087
29. Prithwijit Ghosh, Damayanti Das Ghosh, Amita Majumdar (Giri), Sharmila Sengupta, Chandana Das, **Indranil Mukhopadhyay** (2014): Polymerase chain reaction and deoxyribonucleic acid-sequencing based study on distribution of human papillomavirus 16/18 among histopathological types of cervical intra-epithelial neoplasia and primary invasive cervical carcinoma: A scenario in North Bengal, India. ***Journal of Mid-life Health*, 5(1)**, 14-22, doi:10.4103/0976-7800.127786
30. Majumdar A, **Mukhopadhyay I**, Ghosh S (2014) Association mapping of blood pressure levels in a longitudinal framework using binomial regression. **BMC *Proceedings* 8 (Suppl 1): S 74,** http://www.biomedcentral.com/1753-6561/8/S1/S74
31. Haldar T, **Mukhopadhyay I**, Ghosh S (2014) A Novel Transmission-based Test of Association for Multivariate Phenotypes: An Application to Systolic and Diastolic Blood Pressure Levels. ***BMC Proceedings 8 (Suppl 1)*: S71**, http://www.biomedcentral.com/1753-6561/8/S1/S71
32. Anurag Satpathy, Shivamurthy Ravindra, Amit Porwal, Abhaya C. Das, Manoj Kumar, **Indranil Mukhopadhyay** (2013): Effect of alcohol consumption status and alcohol concentration on oral pain induced by alcohol-containing mouthwash. ***Journal of Oral Science*, 55(2),** 99-105
33. Madhumita Basu, Tania Das, Alip Ghosh, Subhadipa Majumder, Ardhendu Kumar Maji, Sumana Datta Kanjilal, **Indranil Mukhopadhyay,** Susanta Roychowdhury, Soma Banerjee, Sanghamitra Sengupta (2012): Gene-gene interaction and functional impact of polymorphisms on innate genes in controlling *Plasmodium falciparum* blood infection level. ***PLoS ONE,* 7(10), e46441**
34. Neelanjana Roy, **Indranil Mukhopadhyay,** Kausik das, Pratap Pandit, Partha P. Majumder, Amal Santra, Simanti Datta, Soma Mukherjee, Abhijit Chowdhury (2012): Genetic variants of *TNFα, IL10, IL1β, CTLA4* and *TGFβ1* modulate the indices of alcohol- induced liver injury in East Indian population. ***Gene,* Nov 1; 509(1): 178-188;** doi: 10.1016/j.gene.2012.07.077. Epub 2012 Aug 10

35. Damayanti Das Ghosh, Bornali Bhattacharjee, Shrinka Sen, Laikangbam Premi, **Indranil Mukhopadhyay,** Rahul Roy Chowdhury, Sudipta Roy, Sharmila Sengupta (2012): Some novel insights on HPV16 related cervical cancer pathogenesis based on analyses of LCR methylation, viral load, E7 and E2/E4 expressions. ***PLoS ONE,* 7(9), e44678**
36. Anbupalam Thalamuthu, Jingyuan Zhao, Garrett Teoh Hor Keong, Venkateswarlu Kondragunta, **Indranil Mukhopadhyay** (2011): Association tests for rare and common variants based on genotypic and phenotypic measures of similarity between individuals. ***BMC Proceedings*, 5 (Suppl 9):S89**, http://www.biomedcentral.com/1753-6561/5/S9/S89
37. **Mukhopadhyay I**, Saha S, Ghosh S (2011): Integrating binary traits with quantitative phenotypes for association mapping. ***BMC Proceedings*, 5 (Suppl 9):S73**, http://www.biomedcentral.com/1753-6561/5/S9/S73
38. **Indranil Mukhopadhyay,** Souvik Kumar Bandyopadhyay, Aditya Chatterjee (2011): Prioritisation of the determinants of customer satisfaction: A simultaneous equation approach in ordinal endogenous set-up. ***Total Quality Management & Business Excellence***, **22(1**), 117:130, URL: http://dx.doi.org/10.1080/14783363.2010.545558
39. Suddhasil Mookherjee, Deblina Banerjee, Subhadip Chakraborty, Antara Banerjee, **Indranil Mukhopadhyay**, Abhijit Sen, Kunal Ray (2010): Association of IL1A and IL1B loci with primary open angle glaucoma. ***BMC Medical Genetics***, **11**:99, PMID: 20565898
40. **Indranil Mukhopadhyay**, Eleanor Feingold, Daniel E Weeks, Anbupalam Thalamuthu (2010): Association tests using kernel-based measures of multi-locus genotype similarity between individuals. ***Genetic Epidemiology,* 34(3)**, 213-221, PMID: 19697357.
41. Damayanti Das, Bornali Bhattacharjee, Shrinka Sen, **Indranil Mukhopadhyay**, Sharmila Sengupta (2010): Association of viral load with HPV16 positive cervical cancer pathogenesis: Causal relevance in isolates harboring intact viral E2 gene. ***Virology,* 402**,197–202**,** PMID: 20394955
42. Gopaldeb Chattopadhyay, **Indranil Mukhopadhyay** (2010): Progressive censoring under inverse sampling for nonparametric multi-sample location problem. ***Test,* 19**, 325-341
43. Shirley Y. Hill, Eric K. Hoffman, Nicolas Rezza, Anbupalam Thalamuthu, Daniel E. Weeks, Abigail G. Mathews, **Indranil Mukhopadhyay** (2008): Dopaminergic mutations: within family and linkage in multiplex alcohol dependence families. ***American Journal Medical Genetics B, Neuropsychiatric Genetics***, **147B**, 517-26, PMID: 17948902
44. **Indranil Mukhopadhyay**, Sudipta Chatterjee, Aditya Chatterjee (2007): Enhancement of economy of a thermal power generating system through prediction of plant efficiency parameters. ***Journal of Applied Statistics*, 34(3)**, 249-259.
45. Anbupalam Thalamuthu*, **Indranil Mukhopadhyay***, Xiaojing Zheng, George C. Tseng (2006): Evaluation and comparison of gene clustering methods in microarray analysis. ***Bioinformatics*, 22 issue 19**, 2405-2412, PMID: 16882653, http://bioinformatics.oxfordjournals.org/content/vol22/issue19/index.dtl
46. **Indranil Mukhopadhyay**, Eleanor Feingold, Tao Wang, Robert C. Elston, Daniel E. Weeks (2006): Treatment of uninformative families in mean allele sharing tests for linkage. ***Statistical Applications in Genetics and Molecular Biology*, 5(1)**, Article 13. http://www.bepress.com/sagmb/vol5/iss1/art13, PMID: 17049024
47. **Indranil Mukhopadhyay**, Anup Som, Satyabrata Sahoo (2006): Word organization in coding DNA: A mathematical model. ***Theory in Biosciences*, 125(1),** 1-17, PMID: 17046370
48. Anbupalam Thalamuthu*, **Indranil Mukhopadhyay***, Amrita Ray, Daniel E. Weeks (2005): A comparison between microsatellite and single-nucleotide polymorphism markers with respect to two measures of information content. ***BMC Genetics***, **6**(Suppl 1)**:** S27**.** http://www.biomedcentral.com/1471-2156/6/S1/S27. PMID: 16451636

49. **Indranil Mukhopadhyay**, Eleanor Feingold, Daniel E. Weeks (2004): No 'bias' toward the null hypothesis in most conventional multipoint nonparametric linkage analysis. ***American Journal of Human Genetics*****, 75,** 716-718, PMID: 17049024
50. **Indranil Mukhopadhyay**, Aditya Chatterjee, S.K.Maitra, Ruma Dey (2004): Histophysiological appraisal of ovarian activity in an Indian major carp in relation to climatological variables: a data based approach. ***Calcutta Statistical Association Bulletin***, **55,** No. 217-218.
51. A. Som, S. Sahoo, **I. Mukhopadhyay**, J. Chakrabarti, R. Chaudhury (2003): Scaling violations in coding DNA. ***Europhysics Letters,* 62, No. 2**, 271-277.
52. A. K. Basu, **Indranil Mukhopadhyay** (2003): On sequential estimation and confidence sequences for random coefficient autoregressive parameter. ***Stochastic Modelling and Applications,* 6, No. 2**.
53. A. K. Basu, **Indranil Mukhopadhyay** (2000): On Darling-Robbins type confidence sequences and sequential tests for AR(1) model. ***Perspectives in Statistical Science***, Eds. J. K. Ghosh, P. K. Sen & A. K. Basu, 37-46, Oxford University Press, New Delhi.
54. A. K. Basu, **Indranil Mukhopadhyay** (1999): Sequential estimation of the autoregressive parameters in general vector autoregressive model. ***Sankhya*** Series A, **61**, 241-253.
55. A. K. Basu, **Indranil Mukhopadhyay** (1999): On Darling-Robbins type confidence sequences and sequential tests with power one for parameters of an autoregressive process. ***Statistics and Probability Letters*** **45**, 205-214.
56. A. K. Basu, **Indranil Mukhopadhyay** (1998): Sequential shrinkage estimation of the autoregressive parameters in vector autoregressive model. ***Stochastic Modelling and Applications*****, 1**, 72-91.
57. A. K. Basu, **Indranil Mukhopadhyay** (1998): Fixed width sequential simultaneous confidence intervals for the parameters in AR(p) model. ***Frontiers in Probability and Statistics***, Eds. S. P. Mukherjee, S. K. Basu & B. K. Sinha, 25-34, Narosa Publishing House, New Delhi.

***** *equal contribution*

Book Chapter

1. **Indranil Mukhopadhyay**, Saurabh Ghosh, Partha P Majumder (2010): An Overview of Statistical Methods for Disease Gene Mapping Using Data on Related and Unrelated Individuals. ***The HLA Complex in Biology and Medicine: A Resource Book,*** Ed. N. K. Mehta, Jaypee Brothers Medical Publishers Pvt. Ltd., 566-576.
2. Bikram Karmakar, **Indranil Mukhopadhyay** (2016): An Efficient Partition-Repetition Approach in Clustering of Big Data. ***Big Data Analytics-Methods and Applications,*** Ed. S. Pyne, B. L. S. P. Rao, S. B. Rao, Springer, 75-94.

Book

Statistical Methods in Human genetics, (jointly with Prof. Partha Pratim Majumder) (2023), Springer

Patent (India)

Biomarker and an in-vitro method for head & neck cancer prognosis (2019); Application No.: 201811018135 A.

CONSULTANCY

- Agile DataPro, USA: Honorary Advisor & Visiting Faculty
- General Motors: (1) Bivariate reliability analysis in warranty related problems

(2) Prioritising labour codes using bivariate warranty data and classification of important reasons for failure.

- Skytech: On developing seat prediction models.
- Alumnus Software: On predicting stock prices under certain constraints.

EXPERIENCE

Teaching Experience:

30 years' experience in St. Xavier's College (Kolkata), Burdwan University, Indian Statistical Institute and University of Nebraska-Lincoln (USA).
Also taught many short courses in different universities, institutes, and workshops.

Research experience:

2004-2006 **Post Doctoral research fellow**, Department of Human Genetics, University of Pittsburgh, USA. My job profile includes mainly extensive study and research in Statistical Genetics, especially in Linkage Analysis, Association Study, and related problems. Advisor: Prof. Daniel E. Weeks

1994-1995 **Senior Research Fellow**, Department of Statistics, Calcutta University. Advisor: Prof. Adhir Kumar Basu

1992-1994 **Junior Research Fellow**, Department of Statistics, Calcutta University. Advisor: Prof. Adhir Kumar Basu

Awarded Research Projects:

1. **Principal Investigator:** Statistical detection of regulation using multi-omics; Funded by Indo-French Centre for Applied Mathematics. 2018-21
2. **One of the three Project leaders:** Multi-dimensional Research to Enable Systems Medicine: Acceleration using a Cluster Approach; Funded by Department of Biotechnology (DBT), Govt. of India. 2016-2021
3. **Principal Investigator:** A study of critical community size for communicable diseases using FRED; Funded by NIH, USA. 2017-2018
4. **Principal Investigator**: Hands-on workshop on public health analytics and disease modeling: Funded by NIH, USA. 2016-2017
5. **Principal Investigator**: Statistical methods to detect epistasis and gene-environment interactions in genetic association study; Funded by Science and Engineering Board, Department of Science and Technology, Government of India. 2014-2017
6. **Principal Investigator:** Evidence theory based uncertainty analysis of groundwater flow and contaminant transport, Funded by Government of India, Department of Atomic Energy, BRNS Secretariat, 2013-2015
7. **Principal Investigator:** On integrating several data sources in genetic association study; Funded by Indian Statistical Institute, India, 2013-2016.
8. **Principal Investigator:** Multi-locus association and related issues; Funded by Indian Statistical Institute, Kolkata, 2010 – 2013
9. **Principal Investigator:** Statistical methods using estimated population parameters in human QTL mapping Advanced in-country Research Training Project support, which is a continuation of India-US training research fellowship, University of Pittsburgh, USA, 2006 – 2008

10. **Principal Investigator:** On random coefficient autoregressive models Minor Research Project, funded by UGC, India, 2001-2002

Research Guidance:

- Ph D Students: 3 (2 received degree)
- Nearly 26 students at Indian Statistical Institute, Kolkata, India, have done project works under my supervision.
- I have been giving continuous guidance to the research scholars in Human Genetics Unit, ISI in various capacities ranging from writing programs for data management, processing and analysis, developing non-standard statistical tests for the appropriate analysis of data to nurturing and strengthening their statistical knowledge. Along with the research scholars I have also benefited by some very exciting academic discussion in several topics.

WORKSHOPS / CONFERENCES ORGANISED

- Workshop titled "Statistical Methods in Genetic/Genomic Studies" at Institute of Mathematical Science, National University of Singapore, Singapore, during January 03 – 14, 2022
- Hands-on workshop on "Public Health Analytics and Disease Modelling" at North-Eastern Hill University, Shillong, India, May 2017
- Indo-UK workshop on "Solving big data challenges from modern science through statistical modeling" at ICMS, Edinburgh, Scotland, May 5 – 8, 2015
- North-East winter school on "Human genetics: Techniques and statistical analyses" at Sikkim University, Gangtok, India, March 16 – 20, 2015
- Indian French workshop in Statistics, Indian Institute of Science, Bengaluru, India, July 2014

PRESENTATIONS AND INVITED TALKS

International

- PseudoGA: an efficient Pseudotime reconstruction method using single cell RNA-seq data; Invited talk; *Department of Mathematics and Statistics, University of Maryland Baltimore County (UMBC), April 2025*
- Pseudotime reconstruction based on single cell RNA-seq data; 18th Annual Innovations in Design, Analysis, and Dissemination: Frontiers in Biostatistics and Data Science (IDAD) at The University of Kansas Medical Center, April 2025
- Data Science: Data to Information, and Information to Insight; Invited talk; National Workshop on Data Science and Advanced Computing (Online), VIT-AP University, March 2021
- On a novel statistical method for isoform quantification using RNA-seq data; Invited talk; *Department of Statistics, Glasgow University, November 2019*
- Finding hidden code of omics data to disentangle the genetic architecture of disease; Invited talk; *Workshop on Statistical Data Integration;* Institute of Mathematical Sciences, National University of Singapore, Singapore, August 2019
- Finding hidden code of omics data to disentangle the genetic architecture of disease; Invited talk; *Novartis Hyderabad Conference of Statistics in the Pharmaceutical Industry (NHCSPI), Hyderabad Knowledge Center, Hyderabad, India, July 2019*
- On a class of partially sequential two-sample test procedures for multivariate data; Invited talk; *Novartis, Basel, December 2018*
- On a few new statistical methods for integrating multi-omics data; Invited talk; *Novartis, Basel, December 2018*

- On a novel statistical method for isoform quantification using RNA-seq data; Invited talk; *AgroParis Tech, Paris, France, December 2018*
- Multi-loci association test in genetic association study using similarity between individuals;
  - Invited talk; *GQE Le Moulon, France, December 2018*
  - Invited talk; *Workshop on Design of Healthcare Studies;* Institute of Mathematical Sciences, National University of Singapore, Singapore, July 2017
- Tight clustering in large datasets; Invited talk; *Indo-UK Workshop on Solving Big Data Challenges from Modern Science through Statistical Modelling at ICMS, Edinburgh, Scotland, May 2015*
- On testing of gene-gene interaction based on case-control data using genotype similarity between individuals; Invited talk; *Annual joint meeting of ISI, ISM and ISSAS at Tachikawa, Japan, April 2015*
- On a class of partially sequential two-sample test procedures for multivariate continuous data; *Platform presentation; International Conference on New Horizons in Statistical Modelling and Applications, Chennai, India, February 2015*
- Multilocus association test in genetic association study using similarity between individuals;
  - Invited talk; Lecture series on *recent Advances in Mathematical and Computational Biology, Tezpur, India, October 2014*
  - Invited talk; *Indian French workshop in Statistics, Bengaluru, India, July 2014*
- Multilocus association tests: a new paradigm; *Colloquium talk at Department of Statistics, University Missouri, Columbia, USA, March 2014*
- Evaluation and comparison of gene clustering methods in microarray analysis; Invited talk; *Conference and Workshop on Statistical Methods for Nano-Researchers Why? And How; University of Calcutta, India; December 2013*
- A kernel based multilocus genetic association test for longitudinal quantitative phenotype data; Poster presentation; *American Society of Human Genetics Meeting, Boston, USA, October 2013*
- Cognitive world of human mind: some examples; Platform presentation; *Indian Statistical Institute, Kolkata, March 2013*
- On a gene-based test for gene-gene interaction using similarity measures between individuals; Platform presentation; *Recent Advances in Mathematical Statistics and Its Application in Applied Sciences, Gauhati University, Guahati, India, January 2013*
- A novel transmission-based test of association for multivariate phenotypes: an application to systolic and diastolic blood pressure levels; Discussion and presentation; *Genetic Analysis Workshop 18, Skamania, Washington, USA, October 2012*
- A multilocus genetic association test using longitudinal data; Discussion and Platform presentation; *Genetic Analysis Workshop 18, Skamania, Washington, USA, October 2012*
- Statistical issues in genetic association study, (2) Multilocus association in genetic association study: an interesting paradigm; invited talks at SI sponsored workshop on Modelling biological systems; Mizoram University, Aizawl, India, *August 2012*
- A series of lectures on Genetic association study; invited talks at Workshop on Methods in molecular analysis of complex diseases; Jiwaji University, Gwalior, India; *2012*
- Multilocus Association Tests based on Genotypic and Phenotypic Measures of Similarity between Individuals; A poster presentation, Indian Society of Human Genetics Meeting, Manipal, India, February 2011
- Introduction to genetic association study; International conference on mathematical and theoretical biology – Mini Symposium on Genetic Epidemiology; Pune, India; *2012*

- Is functional response a function of prey only or prey-predator both?: A paradigm shift in thought process; Platform presentation, Jadavpur University, *December 2010*
- Genetic association analysis: Current problems and future directions; An invited talk; International Conference on Systems in Medicine and Biology, *Indian Institute of Technology, Kharagpur, December 2010*
- Use of Statistics in clinical research: An invited talk; *Indian Association of Community Ophthalmology, Kolkata, October 2010*
- On a test for gene-gene interaction: A poster presentation; *International Genetic Epidemiology Society Meeting, Boston, USA, October 2010*
- Association Tests for Rare and Common Variants based on Genotypic and Phenotypic Measures of Similarity between Individuals; *Genetic Analysis Workshop 17, Boston, USA, October 2010*
- Integrating Binary Traits with Quantitative Phenotypes For Association Mapping; *Genetic Analysis Workshop 17, Boston, USA, October 2010*
- Estimation of trait parameters in human QTL mapping under different ascertainment schemes: A poster presentation; *International Genetic Epidemiology Society Meeting, York, UK, September 2007*
- Evaluation and comparison of gene clustering methods in microarray analysis:
  - Invited talk; *Multivariate Statistical Methods in the 21st Century, Kolkata, December 2006*
  - Invited talk; *Indian Statistical Institute, Kolkata, India, February 2007*
- Evaluation and comparison of gene clustering methods in microarray analysis; Invited talk; *University of Missouri, Columbia, USA, April 2006*
- Sequential estimation of autoregressive parameters in general vector autoregressive model: A poster presentation; *University of Florida Eighth Annual Winter Workshop, Gainesville, Florida, USA, January 2006*
- Sequential inference on autoregressive models: Invited talk; *Sixth Triennial Calcutta Symposium, Kolkata, India, December 2006*
- A powerful test of association of multiple genes with disease:
  - A platform presentation; *International Genetic Epidemiology Society Meeting, St. Petersburg, USA, September 2006*
  - An invited talk; *Indian Institute of Science Education and Research, Kolkata, India, February 2007*
- A comprehensive comparison of clustering methods in microarray gene expression data: A platform presentation; *WNAR Meeting, Fairbanks, Alaska, USA, June 2005*
- A comparison between microsatellite and SNP markers based on entropy and information content: A poster presentation; *Genetic Analysis Workshop 14* at Noordwijkherhoot, The Netherlands, September 2004
- On sequential estimation of p-th order random coefficient autoregressive parameters: A platform presentation; 5th International triennial Calcutta Symposium, Calcutta, December 2003
- Estimation of autoregressive parameter of RCA model: A sequential approach: invited talk; Department of Statistics, University of Udine, Udine, Italy, May 2003
- A data based study on pineal-gonadal axis in Indian major carp *Catla Catla*: A platform presentation; *National Seminar on Environmental Biology and Fish Biology, Department of Zoology, Visva-Bharati, Santiniketan, India, February 2002*

Administrative and Other Experience:

2020-till date: External member, Board of Studies for School of Advanced Sciences, VIT-AP

2019-2022: Member of recruitment board for recruiting assistant professors in Mathematics, VIT-AP

2018-19: External expert of doctoral committee Ph.D. at BARC (for 3 students)

2013-22: Member and/or Convener: Several admission committees in ISI

2017 – till present: Joint Team Leader and Member of a core committee that is formed to oversee the activities of the DBT funded SyMeC Data Centre that is to come up in the Institute as part of the multi-institutional collaborative biocluster.

2017 – 2018: Joint Convener: International Conference in Statistics and Probability, held at Indian Statistical Institute, during January 2-4, 2018

2017 – 2018: Member, Board of Studies for Evaluation of the Course Curriculum of Bioinformatics (PG) of Maulana Abul Kalam Azad University of Technology (MAKAUT)

2017: Member, Advisory/ Technical Program Committee, First International Conference on Data Engineering and Applications (IDEA2k17)

2014 – 2022: Member: Several administrative committees in ISI

2006 – 2008 Played main role in introducing the Bio-statistics course in the M.Sc. curriculum at the Department of Statistics, University of Burdwan. Also introduced R programming along with C programming language.
Drafted the proposal for DST-FIST grant (Phase II) for the Department of Statistics, University of Burdwan, that eventually got the award.

2001 – 2003 Played major role in preparing DST-FIST grant proposal for Department of Statistics, University of Burdwan and presented at TIFR, Mumbai. Finally we received a grant of Rs. 35 lakhs, first Statistics department in Eastern India to be awarded FIST (Phase I). Single handedly designed and completed the computer laboratory at the Department of Statistics, University of Burdwan. Looked after the entire process of purchasing a large number of computers and their proper installation. This generated a stirring interest among the students to use computers and learn programming that eventually led them in getting placements in different national and international companies.

1995 – 2001 Played major role in introducing and building up of the Statistics (Hons) Department in St. Xavier's College, Kolkata, India. It has become one of the best teaching centres of Statistics at hons level in India within a few years since the inception of the course.

Courses Taught:

At University of Nebraska-Lincoln, USA

(1) STAT 883 (Mathematical Statistics II – Statistical Inference): Spring 2024
(2) STAT 877 (Introduction to Mixed Model Analysis): Fall 2024
(3) STAT 801A (Statistical Methods in Research: Non Calculus): Spring 2025
(4) STAT 983 (Statistical Learning): Fall 2025

At Indian Statistical Institute, Kolkata, India

(1) Statistical Methods in Biomedical Research
(2) Statistical Genetics I
(3) Statistical Genetics II
(4) Multivariate Analysis
(5) Applied Multivariate Analysis
(6) Statistical Methods I

(7) Statistical Methods II
(8) Statistical Methods III
(9) Statistical Methods IV
(10) Linear Statistical Models
(11) Time Series Analysis
(12) Statistics (MSQE)

At University of Burdwan, Burdwan, India

(1) Probability Theory
(2) Linear Models
(3) Regression Analysis
(4) Queueing Theory
(5) Game Theory
(6) Inventory Analysis
(7) Computer Programming

At St. Xavier's College, Kolkata, India

(1) Linear Algebra
(2) Descriptive Statistics
(3) Probability Distributions
(4) Sampling Distribution
(5) Statistical Inference
(6) Testing of Hypothesis
(7) Sequential Analysis
(8) Large Sample Theory
(9) Analysis of Variance (including Regression Analysis, and ANOCOVA)

COMPUTER SKILL

- Programming languages: C, R
- Computing platforms: Macintosh, UNIX, and Windows
- Software: Statistical Genetics software like SAGE, MEGA2, ALLEGRO, MERLIN, Genehunter, PLINK, MDR etc. and Statistical software like STATISTICA.

TRAINING COURSES ATTENDED

2007 Genetic Association Studies and Public Health: Design, Analysis and Research Translation, York, UK
2007 Statistical Methods for Genome-Wide Association Studies, Wellcome Trust Sanger Institute, Hinxton, Cambridge, UK
2004 Genetic Analysis Workshop 14, at Noordwijkerhout, The Netherlands
2004 42nd Wellcome Trust Advanced Course on *Human Genome Analysis: Genetics Analysis of Multifactorial Diseases*, at The Wellcome Trust Genome Campus, Hinxton, Cambridge, UK
2004 Second RECOMB Satellite Workshop on Computational Methods for SNPs and Haplotypes, at Carnegie Mellon University, Pittsburgh, USA
2004 Statistical Analysis for Genetic Epidemiology S.A.G.E. Software Short Course at Cincinnati, USA, organized by Department of Epidemiology and Biostatistics, Case Western Reserve University, USA
2003 First Workshop on *Genetic Epidemiological Methods for Dissection of Complex Human Traits* at Kolkata, India, sponsored by the India-U.S. Research Training Program in

Genetics, University of Pittsburgh, Pittsburgh, USA and TCG-ISI Centre for Population Genomics, Kolkata, India

2002 International Bayesian Workshop/Conference at Indian Statistical Institute, Kolkata, India

2002 UGC approved & sponsored "Orientation Programme" at Academic Staff College, Burdwan University, Burdwan, India

2002 UGC approved & sponsored "Refresher Course" on Statistics at Department of Statistics, Calcutta University, Kolkata, India

2001 Statistical and Computational Workshop on Human Genomics at Indian Statistical Institute, Kolkata, India

1992 Course on UNIX & C, conducted by Regional Computer Centre, Jadavpur University Campus, Kolkata, India

1992 Winter School on Mathematical Analysis and Probability Theory, at Department of Mathematics, Sambalpur University, organised by Indian Statistical Institute, Kolkata, India

HONOURS AND AWARDS

- Post-doctoral Research Training Fellow, under India-US Research Training Program in Genetics (TCG-ISI, Kolkata and University of Pittsburgh, Pittsburgh), University of Pittsburgh, Pittsburgh, USA
  2004 – 2006
- Guest scientist at the Abdus Salam Centre for Theoretical Physics at Trieste, Italy
  2003
- Invited Speaker, 82nd Annual Session, Indian Science Congress Association, Jadavpur University, Calcutta (Topic: Teaching of Statistics in Indian Colleges and Universities)
  1995
- Qualified CSIR-NET Examination, a National Eligibility Test conducted jointly by Council of Scientific and Industrial Research and University Grant Commission, India (for obtaining Research Fellowship; Subject: Statistics)
  1992

RESEARCH INTEREST

- Genomic Data Integration
- Genetic Association study
- Time Series Analysis
- Mathematical Statistics
- Single cell genomics
- Biostatistics
- Machine Learning
- Evidence Theory
- Mathematical Modelling of Disease Dynamics

MEMBERSHIPS

- International Biometric Society
- Indian Society of Human Genetics
- Calcutta Statistical Association
- Indian Society of Mathematical Biology

EDITORIAL JOBS

Associate editor/Editorial board member

- Scientific Reports
- Statistics and Applications

REFEREE

- Bioinformatics
- BMC Genetics
- Statistical Methodology
- Scientific reports
- Sadhna
- Journal of Genetics
- Genetic Epidemiology
- Statistical Science
- Communications in Statistics – Theory and Methods
- Statistics and Probability Letters
- Journal of Statistical Planning and Inference
- Calcutta Statistical Association Bulletin
- Environmental and Ecological Statistics
- Indian Journal of Medical research
- Statistics and Applications
- Peer J

PERSONAL PROFILE

My creativity finds an outlet in nature photography. I always try to pursue my interest in mountaineering and trekking during a break and have been awarded Grade 'A' in *Basic Mountaineering Course* conducted by Directorate of Mountaineering and Allied Sports, Manali, Himachal Pradesh, India, 1998. I love to travel, interact and meet with people of diverse cultures. In India, I have organized five basic rock-climbing courses held at different parts of West Bengal, a high-altitude trekking programme in Garhwal Himalayas. and two mountaineering expeditions in Ladakh Himalaya. Reading is my passion.

REFERENCES

Prof Daniel E. Weeks Department of Human Genetics and Biostatistics University of Pittsburgh 130 DeSoto Street, A302A Crabtree Hall, GSPH Pittsburgh, PA 15261, USA *Ph:* 1-412-624-5388, *Fax:* 1-412-624-3020 *Email:* dweeks@pitt.edu	Prof Eleanor Feingold Dean of the College of Science Department of Statistics College of Science Oregon State University *Ph. 1-541-737-3886* *Email:* eleanor.feingold@oregonstate.edu