SUMAN | GUHA

Summary

I am an assistant professor at the Department of Statistics, Presidency University, Kolkata, India. I am interested in diverse areas of statistics, including but not restricted to its application in the field of agriculture and modern biology, its less explored connections with mathematics and the interface area among statistics, mathematics and machine learning.
My current research interest lies in building realistic spatio-temporal models for environmental problems and investigating their finite sample and asymptotic behaviour. Besides, I am also extensively engaged in teaching and mentoring of bachelors, masters and Ph.D. students. I am an enthusiast in recreational mathematics.

Affiliation

Assistant Professor
Department of Statistics, Presidency University
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Research Interests

Spatial and spatio-temporal modeling, spatial asymptotics, application of statistics in agriculture, high dimensional probability, Bayesian inference and MCMC methods

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ResearchGate Profile : Click Here

Employment

07/2016 - till date : Assistant Professor, Department of Statistics, Presidency University, Kolkata, India
09/2014 - 07/2016 : Assistant Professor under West Bengal Education Service, Department of Statistics, Bethune College, Kolkata, India

Education

08/2009 – 08/2020 : Ph.D. (Statistics), Indian Statistical Institute, Kolkata, India
07/2007 – 05/2009 : Master of Statistics (Specialization : Mathematical Statistics and Probability), Indian Statistical Institute, Kolkata, India
07/2004 – 05/2007 : Bachelor of Statistics (Honors), Indian Statistical Institute, Kolkata, India

Honors, Awards and Fellowships

2019 : Session Chair for session S144 (Bayesian Statistics) at the 11 th ICSA international conference hosted at Hangzhou, China during December 20-22, 2019
2010 : Shyama Prasad Mukherjee Fellowship (SPMF) in mathematical sciences for the year 2010, Council of Scientific and Industrial Research (CSIR), India

Papers, Preprints and Book Chapters

2023 : Praharaj, S. and **Guha, S.**, An Interesting Class of Non-Kac Random Polynomials, *Journal of the Indian Society for Probability and Statistics*, 24, 545-564
2023 : Rahaman, T., Biswas, S., Ghorai, S., Bera, S., Dey, S., **Guha, S.**, Maity, D., De, S., Ganguly, M. and Das, M., Integrated application of morphological, anatomical, biochemical and physico-chemical methods to identify superior, lignocellulosic grass feedstocks for bioenergy purposes, *Renewable and Sustainable Energy Reviews*, 187, 113738
2022 : **Guha, S.**, **Contributed Discussion for the Article** Bayesian Nonstationary and Nonparametric Covariance Estimation for Large Spatial Data **Authored by Kidd, B. and Katzfuss, M.**, *Bayesian Analysis*, 17 (1), 334-336
2022 : **Guha, S.** and Bhattacharya, S., Bayesian Modeling of Discrete-Time Point-Referenced Spatio-Temporal Data, *Journal of the Indian Institute of Science*, 102, 1189-1204
2022 : Biswas, S., Rahaman, T., Gupta, P., Mitra, R., Dutta, S., Kharlyngdoh, E., **Guha, S.**, Ganguly, J., Pal, A. and Das, M., Cellulose and lignin profiling in seven, economically important bamboo species of India by anatomical,biochemical, FTIR spectroscopy and thermogravimetricanalysis, *Biomass and Bioenergy*, 158, 106362
2021 : Chakraborty, S., Biswas, P., Dutta, S., Basak, M., **Guha, S.**, Chatterjee, U. and Das, M., Studies on Reproductive Development and Breeding Habit of the Commercially Important Bamboo Bambusatulda Roxb, *Plants*, 10 (11), 2375
2021 : Biswas, S., Sarkar, A., Kharlyngdoh, E., Somkuwar, B.G., Biswas, P., Dutta, S.,**Guha, S.** and Das, M., Evidence of stress induced flowering in bamboo and comments on probable biochemical and molecularfactors, *Journal of Plant Biochemistry and Biotechnology*, 30 (4), 1020-1026
2021 : Dutta, S., Deb, A., Biswas, P., Chakraborty, S.,**Guha, S.**, Mitra, D., Geist, B., Schäffner, A. R. and Das, M., Identification and functional characterization of two bamboo FD gene homologs having contrasting effects on shoot growth and flowering, *Scientific Reports, Nature*, 11
2020 : Laha, S.D., Naskar, A. J., Sarkar, T., **Guha, S.**, Mondal, H. A. and Das, M., Field phenotyping for salt tolerance and imaging techniques for crop stress biology, Book Chapter, Intelligent Image Analysis for Plant Phenotyping, *CRC Press*, 287-304

2018 : **Guha, S.** and Bhattacharya, S., Gaussian random functional dynamic spatio-temporal modeling of discrete-time spatial time series data, *arXiv : 1405.6531v3*
2011 : Bose, A.,**Guha, S.**, Hazra, R.S. and Saha, K., Circulant type matrices with heavy tailed entries, *Statistics and Probability Letters*, 81 (11), 1706-1716

Talks and Posters at Seminars, Workshops and Conferences

11/2023 : Invited Talk at 2023 14-Day Workshop on Statistical Learning & Bayesian Analysis with R, Interdisciplinary Statistical Research Unit (ISRU), ISI Kolkata
01/2023 : Invited Talk at Workshop An Advanced Training Program on Bayesian Modelling and Simulation, DST-Center for Interdisciplinary Mathematical Sciences, Banaras Hindu University, India
12/2022 : Invited Talk at 2022 5-Day Workshop on Bayesian Inference and Computation, Interdisciplinary Statistical Research Unit (ISRU), ISI Kolkata
08/2021 : Contributed Talk at 2021 Joint Statistical Meetings of American Statistical Association (Virtual)
07/2021 : Invited Talk at Goenka College of Commerce and Business Administration, Kolkata (Virtual)
07/2021 : Contributed Talk at Bernoulli-IMS 10 the World Congress in Probability and Statistics (Virtual)
07/2021 : Contributed Talk and Poster Presentation at 2021 World Meeting of the International Society for Bayesian Analysis (ISBA) (Virtual)
08/2020 : Contributed Talk and Poster at Session on Spatial Statistics, Bernoulli-IMS One World Symposium 2020 (Virtual)
08/2020 : Invited Talk at "Orientation Programme on Dummy Variable Models in Regression with Special Emphasis to Logit and Probit Models 2020", Indian Statistical Institute, Kolkata, India (Virtual)
07/2020 : Invited Talk at "One Week Online Workshop on Statistics and Machine Learning in Practice 2020", BKC College, Kolkata, India (Virtual)
12/2019 : Invited Talk at the 11 th ICSA international conference hosted at Hangzhou, China during December 20-22
03/2019 : Invited Talk at "Orientation Training on Data Visualization", Indian Statistical Institute, Kolkata, India
01/2019 : Invited Talk at Two-day Faculty Development Programme on "Contemporary Methods of Business Research and Publication Requisite in High Impact Journal", Heritage Business School, Kolkata, India
12/2015 : Contributed Talk at Ninth International Triennial Calcutta Symposium on Probability and Statistics, University of Calcutta and Calcutta Statistical Association, India
03/2015 : Contributed Talk at VI-MSS Workshop on Environmental Statistics, organized jointly by ISI, India and SAMSI, USA
12/2014 : Contributed Talk at ASD Research Scholar's Meet, Applied Statistics Division, ISI Kolkata, India
07/2014 : Invited Talk at the 3 rd IMS Asia Pacific Rim Meeting hosted at Taipei, Taiwan

Seminars, Workshops and Conferences Attended

2023 : RCMATH23-24: Development in Mathematics and it's Applicability, 28 Nov - 11 Dec, UGC-HRDC, Jadavpur University, Kolkata (Virtual)
2023 : 13FIP23-24: 13th Faculty Induction Programme, 24 Jul - 24 Aug, UGC-HRDC, Jadavpur University, Kolkata (Virtual)
2021 : Design and Analysis Experiments (DAE) 2021, 5 - 27 Oct, (Virtual)
2021 : 17 th Applied Statistics Conference, 20 - 22 Sep, Slovenia (Virtual)
2021 : Connections and Introductory Workshop : Universality and Integrability in Random Matrix Theory and Interacting Particle Systems, Part 1, 23 - 27 Aug, MSRI, USA (Virtual)
2021 : Dimensionality Reduction and Inference in High-Dimensional Time Series, 5 - 6 Jul, Maastricht University, Netherlands (Virtual)
2021 : Applications of Statistical Techniques in Real World, 1 - 15 May, Teaching Learning Centre, Ramanujan College, University of Delhi, India (Virtual)
2021 : NVIDIA GTC 21 - AI Conference, 12 - 16 Apr, (Virtual)
2021 : Safety and Security of Deep Learning, 10 - 11 Apr, Brown University, USA (Virtual)
2021 : CIRM Workshop on Discrepancy Theory and Applications Part - 2, 4 - 5 Feb, CIRM, France (Virtual)
2020 : CIRM Workshop on Discrepancy Theory and Applications Part - 1, 30 Nov - 1 Dec, CIRM, France (Virtual)
2020 : CIRM Research School : Quasi-Monte Carlo Methods and Applications, 2-6 Nov, CIRM, France (Virtual)
2020 : Virtual Workshop on Missing Data Challenges in Computation, Statistics and Application, 8-11 Sep, IAS school of mathematics, Princeton (Virtual)
2020 : Virtual Workshop on Mathematical Models for Prediction and Control of Epidemics, 12-14 Aug, MSRI (Virtual)
2020 : 14 th International Conference in Monte Carlo and Quasi-Monte Carlo Methods in Scientific Computing 10-14 Aug, University of Oxford (Virtual)
2013 : ISBA Regional Meeting & International Workshop/Conference on Bayesian Theory and Applications (IWCBTA), India
2012 : Eighth International Triennial Calcutta Symposium on Probability and Statistics, University of Calcutta and Calcutta Statistical Association, India
2010 : International Congress of Mathematicians, 2010, Hyderabad, India
2010 : ICM Satellite Conference on Probability and Stochastic Process, ISI Bangalore, India
2009 : Seventh International Triennial Calcutta Symposium on Probability and Statistics, University of Calcutta and Calcutta Statistical Association, India
2009 : Lectures on Probability and Stochastic Processes IV, 2009, ISI Delhi, India

Teaching

2024 : Instructor (at Presidency University):
STAT152C04 Probability and Probability Distributions II (4 Years B.Sc. Major Course) 2024,
STAT154MC02 Introductory Probability (4 Years B.Sc. Minor Course) 2024,
STAT06C14 Time Series Analysis (B.Sc. Level Course) 2024

2023 : Instructor (at Presidency University):
STAT101C01 Descriptive Statistics (4 Years B.Sc. Major Course) 2023,
STAT104MC01 Statistical Methods (4 Years B.Sc. Minor Course) 2023,
STAT02C4 Probability and Probability Distributions II (B.Sc. Level Course) 2023,
STAT02GE02 Sampling and Inference (B.Sc. Pass Course) 2023,
STAT0903 Inference III (M.Sc. Level Course) 2023,
STAT0991 Analysis of Time Series and Spatial Data (M.Sc. Level Course) 2023,
STAT1003 Nonparametric Inference (M.Sc. Level Course) 2023

2022 : Instructor (at Presidency University):
STAT01C1 Descriptive Statistics (B.Sc. Level Course) 2022,
STAT01GE01 Introductory Statistics and Probability (B.Sc. Pass Course) 2022,
STAT 02C4 Probability and Probability Distributions II (B.Sc. Level Course) 2022,
STAT02GE02 Introductory Probability (B.Sc. Pass Course) 2022,
STAT0903 Inference III (M.Sc. Level Course) 2022,
STAT0991 Analysis of Time Series and Spatial Data (M.Sc. Level Course) 2022,
STAT1003 Nonparametric Inference (M.Sc. Level Course) 2022

2021 : Instructor (at Indian Association for the Cultivation of science):
MAT 4211 Statistics with R for Integrated M.Sc.-Ph.D. students in mathematics 2021,
Instructor (at Presidency University):
STAT01C1 Descriptive Statistics (B.Sc. Level Course) 2021,
STAT01GE01 Statistical Methods (B.Sc. Pass Course) 2021,
STAT03C7 Statistical Computing Using C/C++ (B.Sc. Level Course) 2021,
STAT0902 Time Series Analysis (M.Sc. Level Course) 2021,
STAT02C4 Probability and Probability Distributions II (B.Sc. Level Course) 2021,
STAT0802 Asymptotic Theory (M.Sc. Level Course) 2021,
STAT1003 Nonparametric Inference (M.Sc. Level Course) 2021,
STATE4: Statistical Computing and Useful Document Processing Software (Ph.D. Coursework) 2021,
STATE5: Advanced Statistical Methods Related to Contemporary Research (Ph.D. Coursework) 2021

2020 : Instructor (at Presidency University):
STAT01C1 Descriptive Statistics (B.Sc. Level Course) 2020,
STAT03C7 Statistical Computing Using C/C++ (B.Sc. Level Course) 2020,
STAT0902 Time Series Analysis and Stochastic Process (M.Sc. Level Course) 2020,
STAT02C4 Probability and Probability Distributions II (B.Sc. Level Course) 2020,
STAT0802 Asymptotic Theory (M.Sc. Level Course) 2020,
STAT1003 Nonparametric Inference (M.Sc. Level Course) 2020

2019 : Instructor (at Presidency University):
STAT01C1 Descriptive Statistics (B.Sc. Level Course) 2019,
STAT03C7 Statistical Computing Using C/C++ (B.Sc. Level Course) 2019,
STAT0902 Time Series Analysis (M.Sc. Level Course) 2019,
STAT02C4 Probability and Probability Distributions II (B.Sc. Level Course) 2019,
STAT0802 Asymptotic Theory (M.Sc. Level Course) 2019,
STAT1003 Nonparametric Inference (M.Sc. Level Course) 2019

2018 : Instructor (at Presidency University):
STAT01C1 Descriptive Statistics (B.Sc. Level Course) 2018,
STAT0391 C Programming Part - I (B.Sc. Level Course) 2018,
STAT0902 Time Series Analysis (M.Sc. Level Course) 2018,
STAT0201 Descriptive Statistics II (B.Sc. Level Course) 2018,
STAT0291 Numerical Analysis II (B.Sc. Level Course) 2018,
STAT0401 C Programming Part - II (B.Sc. Level Course) 2018,
STAT1003 Nonparametric Inference (M.Sc. Level Course) 2018

2017 : Instructor (at Presidency University):
STAT0101 Descriptive Statistics I (B.Sc. Level Course) 2017,
STAT0191 Numerical Analysis I (B.Sc. Level Course) 2017,
STAT0391 C Programming Part - I (B.Sc. Level Course) 2017,

STAT0902 Time Series Analysis (M.Sc. Level Course) 2017,
STAT0201 Descriptive Statistics II (B.Sc. Level Course) 2017,
STAT0291 Numerical Analysis II (B.Sc. Level Course) 2017,
STAT0401 C Programming Part - II (B.Sc. Level Course) 2017,
STAT0602 Time Series Analysis (B.Sc. Level Course) 2017,
STAT1003 Nonparametric Inference (M.Sc. Level Course) 2017

2016 : Instructor (at Presidency University):
STAT0101 Descriptive Statistics I (B.Sc. Level Course) 2016,
STAT0191 Numerical Analysis I (B.Sc. Level Course) 2016,
STAT0391 C Programming Part - I (B.Sc. Level Course) 2016,
STAT0902 Time Series Analysis (M.Sc. Level Course) 2016

2014 - 2016 : Instructor (at Bethune College):
Descriptive Statistics (B.Sc. Level Course) 2016,
Time Series Analysis (B.Sc. Level Course) 2015,
Descriptive Statistics (B.Sc. Level Course) 2015,
Time Series Analysis (B.Sc. Level Course) 2014

Project Supervision and Mentoring

2023 : M.Sc. project supervision : Shubhamoy Paul Dissertation Title : Project on Peleoclimate Temperature Backcasting, Debapriya Mondal Dissertation Title : Comparative Study of SARIMA, Holt Winters' and Damped Holt Winters' methods for Time Series Forecasting: A Simulation Study, Biplab Dey and Sanchita Khan Dissertation Title : Baltimore City Crime Analysis
2022 : M.Sc. project supervision (Joint Supervision with Atanu Kumar Ghosh) : Som Denray Dissertation Title : Statistical Analysis of Two Most Exclusive Cryptocurrencies : Bitcoin and Etherium
2021 : M.Sc. project supervision (University of Kalyani) : Swarnendu Dutta, Siddhartha Saha and Ritobhash Dey Dissertation Title : Statistical Study on Different Human-made Factors Influencing Climate Change
2020 : M.Sc. project supervision : Sujata Pal Dissertation Title : Robustness of High-Dimensional Linear Regression Methods under Model Misspecification : Some Simulation Studies, Avigyan Maitra and Anuj Adhikari Dissertation Title : A comparative Study of Different Tests of Normality under Model Misspecification
2018 : M.Sc. project co-supervision (jointly with Prof. Smarajit Bose, ISI, Kolkata) : Diya Bhaduri Dissertation Title : Investigating Depession Using Tree-Based Models

Journal and Proceedings Refereeing

Refereed research articles for *Sankhya B* (1), *Computational Statistics* (1), *Annals of Applied Statistics* (1), *Journal of Applied Statistics* (1), *Statistics and Probability Letters* (2), *Sankhya A* (2), *Statistics and Applications* (1) , *STAT* (2), *Statistics in Medicine* (1), *Journal of Indian Statistical Association* (1), *Journal of Indian Institute of Science* (1), *Journal of Medical Virology* (1), *Plos One* (1), *Journal of Multivariate Analysis* (1), *Annals of Applied Probability* (1), *IEEE Open Journal of Signal Processing* (1), *Statistics and Applications* (1) and *Proceedings of 1st International Conference on Data Analytics and Insights (ICDAI-2023)* (2).

Book Refereeing

Refereed a book on asymptotic inference by *Springer Nature*

Membership of Professional Bodies

Life member of Indian Statistical Institute Alumni Association
Member of International Society for Bayesian Analysis
Member of Indian International Statistical Association

Computer Skills

Operating Systems : Windows, UBUNTU
Programming Languages : C, R, MATLAB, Mathematica

Hobbies

Gardening, solving puzzles and problems in recreational mathematics, listening to music, reading popular science articles