

Soudeep Deb

CURRENT POSITION	Assistant Professor Decision Sciences Area Indian Institute of Management Bangalore, India.	Webpage: soudeepd.github.io Phone: +91 80-26993387 E-mail: soudeep@iimb.ac.in
CITIZENSHIP	India	
RESEARCH INTERESTS	Time series, Spatio-temporal modeling, Environmental data analysis, Clustering and classification, Nonparametric methods, Sports analytics, Applications of statistics in finance and other disciplines.	
EXPERIENCE	Indian Institute of Management Bangalore , Bengaluru, KA, India. <ul style="list-style-type: none"> Assistant Professor (tenured since Oct 2023), Decision Sciences Area. NBC Universal Media, LLC. , New York, NY, USA. <ul style="list-style-type: none"> Senior Lead Data Scientist, Decision Sciences Division. 	Mar 2020 - Present Sep 2018 - Feb 2020
EDUCATION	University of Chicago , Chicago, IL, USA. Ph.D., Statistics <ul style="list-style-type: none"> Thesis: Irregular spaced random field, Spatio-temporal data and Clustering of time series Advisor: Dr. Wei Biao Wu Other committee members: Dr. Ruey S. Tsay and Dr. Michael L. Stein Indian Statistical Institute , Kolkata, WB, India. Master of Statistics (M. Stat.) <ul style="list-style-type: none"> First Division with Distinction Specialization: Mathematical Statistics and Probability Dissertation: Association analysis for identifying rare genetic variants Advisor: Dr. Saurabh Ghosh Bachelor of Statistics (B. Stat.) <ul style="list-style-type: none"> First Division with Distinction 	Aug 2018 May 2013 May 2011
RESEARCH GRANTS	Research Seed Grant from IIM Bangalore, India: <ul style="list-style-type: none"> Project: New techniques to analyze categorical and discrete time series data Amount: INR 300,000 for two years (August 2021 to December 2023) Young Faculty Research Grant from IIM Bangalore, India: <ul style="list-style-type: none"> Amount: INR 900,000 for three years (March 2020 to February 2023) 	
DOCTORAL STUDENTS	PhD thesis advisor: <ul style="list-style-type: none"> Anchal Soni, Decision Sciences, Indian Institute of Management Bangalore. Thesis: Methods of analyzing structural breaks in multivariate time series: Applications to financial data. Feb 2023 Siddharth Rawat, Decision Sciences, Indian Institute of Management Bangalore. Thesis: Spatio-temporal models in epidemiology and climate change. May 2023 Kapil Gupta, Decision Sciences, Indian Institute of Management Bangalore. Thesis: Analyzing house price dynamics using novel spatio-temporal methods. (Exp) 2025 Kunal Rai, Decision Sciences, Indian Institute of Management Bangalore. Thesis: Nonparametric methods and PINN in quantile regression for time series data. (Exp) 2026 PhD thesis co-advisor: <ul style="list-style-type: none"> Archi Roy, Dept of Mathematics, Indian Institute of Science Education & Research Pune. (Exp) 2025 Chinmay Divekar, Decision Sciences, Indian Institute of Management Bangalore. (Exp) 2026 Doctoral committee member: <ul style="list-style-type: none"> Sajad S Santhosh, Public Policy, Indian Institute of Management Bangalore. (Exp) 2024 M Mareeswaran, Finance & Accounting, Indian Institute of Management Bangalore. (Exp) 2025 	

TEACHING

Course instructor, at Indian Institute of Management, Bangalore:

- Sports Analytics (PGP/MBA)
- Multivariate Statistics (FPM/PhD)
- Decision Sciences I (PGP/MBA)
- Statistical Inference (FPM/PhD)

Fall, 2023
Spring, 2021 - 2023
Fall, 2020 - 2023
Winter, 2020

Course instructor, at University of Chicago:

- Introductory Statistics, Chicago Academic Achievement Program (UG)
- Statistical Models and Methods I (UG)

Summer, 2015, 2017
Winter 2015

PUBLICATIONS

1. Divekar, C., **Deb, S.**, Roy, R. (2023) Real-time forecasting within soccer matches through a Bayesian lens. Accepted in the Journal of the Royal Statistical Society Series A.
2. Roy, A., Soni, A., **Deb, S.** (2023) A wavelet-based methodology to compare the impact of pandemic versus Russia-Ukraine conflict on crude oil sector and its interconnectedness with other energy and non-energy markets. Energy Economics, 124, 106830.
3. **Deb, S.**, Karmakar, S. (2023) A novel spatio-temporal clustering algorithm with applications on COVID-19 data from the United States. Computational Statistics & Data Analysis, 107810.
4. Mareeswaran, M., Sen, S., **Deb, S.** (2023). New methods of structural break detection and an ensemble approach to analyze exchange rate volatility of Indian rupee during COVID-19. Journal of the Royal Statistical Society Series A: Statistics in Society, qnad078.
5. Roy, A., **Deb, S.**, Chakarwari, D. (2023) Impact of COVID-19 on public social life and mental health: A statistical study of Google Trends data from the USA. Journal of Applied Statistics, 1-25.
6. **Deb, S.** (2023). Analyzing airlines stock price volatility during COVID-19 pandemic through internet search data. International Journal of Finance & Economics, 28(2), 1497-1513.
7. Rawat, S., **Deb, S.** (2023). A spatio-temporal statistical model to analyze COVID-19 spread in the USA. Journal of Applied Statistics, 50(11-12), 2310-2329.
8. **Deb, S.**, Majumdar, M. (2023). A quadratic trend-based time series method to analyze the early incidence pattern of COVID-19. Biostatistics & Epidemiology, 7(1), e2076529.
9. Majumdar, M., Banerjee, M., Sengupta, J., **Deb, S.**, Jana, C. K., Roy, B. K. (2023) Prevalence and spectrum of diabetic peripheral neuropathy and its correlation with insulin resistance – An experience from eastern India. International Journal of Advanced Research, 11(06), 1085-1094.
10. **Deb, S.**, Deb, S. (2022). An ensemble method for early prediction of dengue outbreak. Journal of the Royal Statistical Society Series A, 185(1), 84-101.
11. **Deb, S.** (2022). A goal based index to analyze the competitive balance of a football league. Journal of Quantitative Analysis in Sports, 18(3), 171-186.
12. Nahata, S., **Deb, S.** (2021) A Machine Learning Approach to Analyze the Effect of Situational and Player-Dependent Features on Converting Freekicks in Soccer. In Conference Proceedings 2021 Asia-Singapore Conference on Sport Science (p. 19).
13. **Deb, S.**, Tsay, R. S. (2019). Spatio-temporal Models with Space-time Interaction and Their Applications to Air Pollution Data. Statistica Sinica, 29, 1181-1207.
14. **Deb, S.**, Dey, D. (2019). Spatial Modeling of Shot Conversion in Soccer to Single out Goalscoring Ability. Journal of Sports Analytics, 5(4), 281-297.
15. **Deb, S.** (2019). VAR Model Based Clustering Method for Multivariate Time Series Data. Journal of Mathematical Sciences, 237(6), 754-765.
16. Prickett, K.C., Guiterrez, C., **Deb, S.** (2019). Family Firearm Ownership and Firearm-related Mortality among Young Children: 1976-2016. Pediatrics, 143(2), e20181171.
17. Chazin, H., **Deb, S.**, Falk, J., Srinivasan, A. (2019). New Statistical Approaches to Intra-individual Isotopic Analysis and Modelling of Birth Seasonality in Studies of Herd Animals. Archaeometry, 61(2), 478-493.

18. **Deb, S.**, Pourahmadi, M., Wu, W. B. (2017). An Asymptotic Theory for Spectral Analysis of Random Fields. Electronic Journal of Statistics, Vol. 11, No. 2, p. 4297-4322.
19. Zechner, C., **Deb, S.**, Koeppl, H. (2013). Marginal Dynamics of Stochastic Biochemical Networks in Random Environments. In Control Conference (ECC), 2013 European, p. 4269-4274, IEEE.

ARTICLES UNDER REVISION

1. **Deb, S.**, Jana, K. (2022+). Nonparametric quantile regression for time series with replications and its application to climate data. Under second revision. Pre-print: <https://arxiv.org/abs/2107.02091>.
2. Chattopadhyay, A., **Deb, S.** (2022+) A spatio-temporal model for binary data and its application in analyzing the levels of COVID-19 spread. Under second revision.
3. Paul, M., Roy, R., **Deb, S.** (2022+). Effect of influence in voter models and its application in detecting frauds in an election. Under revision.
4. Bag, S., Gupta, K., **Deb, S.** (2022+). A review and recommendations on variable selection methods in regression models for binary data. Under revision. Pre-print: <https://arxiv.org/abs/2201.06063>.
5. Gupta, K., Krishnamurthy, V., **Deb, S.** (2022+). What elements of the opening set influence the outcome of a tennis match? An in-depth analysis of Wimbledon data. Under revision.

LATEST SEMINARS

1. (Upcoming) Nonparametric estimation of shape-constrained time series regression model, RMS Annual Conference, Guwahati, India. Dec 2023
2. Using t-SNE in analyzing multivariate time series data, EcoSta 2023, Tokyo, Japan. Aug 2023
3. Nonparametric methods to deal with quantile regression problems in time series and spatio-temporal settings. Symposium, National University of Singapore, Singapore. May 2023
4. New methods of structural break detection in multivariate time series and its use in modeling financial data. Symposium, Indian Statistical Institute, Kolkata, India. Mar 2023
5. A Bayesian approach to identify changepoints in spatio-temporal ordered categorical data. IISA 2022 Conference, Bengaluru, India. Dec 2022
6. Analyzing count data using a time series model with an exponentially decaying covariance structure. EURO 2022 Conference, Finland. Jul 2022
7. A goal based index to analyze the competitive balance of a football league. 8th Western Conference on Football and Finance, Reading, UK. May 2022
8. Developing statistical methods in Health (Epidemiological) Data. SERB-AV Workshop 2022, IIIT Dharwad, India. May 2022
9. A new classification method for multivariate time series data. 14th International Conference of the ERCIM WG on Computational and Methodological Statistics, London, UK. Dec 2021
10. Impact of global warming on rainfall: A Spatio-temporal study. RSS International conference 2021 (virtual), Manchester, UK. Sep 2021
11. Spectral density based clustering method for spatio-temporal datasets. 4th International Conference on Econometrics and Statistics, EcoSta 2021 (virtual), Hong Kong. Jun 2021
12. A Mathematical Take on the Competitive Balance of a Football League. Guest lecture (virtual), Mathematics of Sports, Stanford University, Stanford, USA. May 2021

CONSULTING SERVICES

- DBS Bank, Singapore** 2023
- Topic: Value of data joint study.
- SportsKPI, Bengaluru, India** 2022 - 2023
- Topic: Valuation of a Kabaddi player and its use in building strategies.

PROFESSIONAL SERVICES	Positions of responsibility , at Indian Institute of Management Bangalore:	
	<ul style="list-style-type: none"> • Doctoral Program Coordinator, Decision Sciences Area. • Mentor to pre-doctoral students, Decision Sciences Area. 	Since 2023 Since 2021
	Session chairs , at the following conferences:	
	<ul style="list-style-type: none"> • (Upcoming) EcoSta 2024, Beijing, China • EcoSta 2023, Tokyo, Japan • 14th CMStatistics, London, UK • 15th CMStatistics, London, UK • IISA Conference, Bengaluru, India. 	Jul 2024 Aug 2023 Dec 2021 Dec 2022 Dec 2022
	Reviewer , for the following journals:	
	<ul style="list-style-type: none"> • Biometrics • BMC Public Health • Electronic Journal of Statistics • IIMB Management Review • Indian Journal of Science and Technology • Journal of Advances in Management Research • Journal of Behavioral and Experimental Finance • Journal of Multivariate Analysis • Journal of Sports Analytics • Journal of the Royal Statistical Society: Series A and Series C • Linear Algebra and its Applications • Sankhya A and Sankhya B • Scientific Reports • Statistics and Probability Letters 	
HONORS	At Indian Institute of Management Bangalore:	
	<ul style="list-style-type: none"> • Excellence in Teaching Award 	2021-22
	At University of Chicago:	
	<ul style="list-style-type: none"> • International House Ralph W. Nicholas Fellowship Award • Graduate Council Travel Fund Award • Senior Consultant, Department of Statistics • Runner-up for Department of Statistics Consulting Award • Nominated for Best Teaching Assistant in Physical Sciences Division 	2017-18 2017 2016-17 2016 Winter 2014
	Earlier awards:	
	<ul style="list-style-type: none"> • Kishore Vaigyanik Protsahan Yojana Scholarship, Indian Institute of Science • Selected for International Mathematical Olympiad Training Camp, India 	2007 to 2013 2007 & 2008
SKILLS	Technical strength:	
	<ul style="list-style-type: none"> • Proficient: R, MATLAB, L^AT_EX, Microsoft Office • Working knowledge: Python, SQL, C. 	
	Languages:	
	<ul style="list-style-type: none"> • Fluent in reading, writing, speaking: English, Bengali, Hindi. • Basic reading and speaking: Portuguese. 	