

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
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. Mar 2020 - Present <ul style="list-style-type: none">Assistant Professor (tenured since Oct 2023), Decision Sciences Area. NBC Universal Media, LLC. , New York, NY, USA. Sep 2018 - Feb 2020 <ul style="list-style-type: none">Senior Lead Data Scientist, Decision Sciences Division.	
EDUCATION	University of Chicago , Chicago, IL, USA. Ph.D., Statistics Aug 2018 <ul style="list-style-type: none">Thesis: Irregular spaced random field, Spatio-temporal data and Clustering of time seriesAdvisory committee: Dr. Wei Biao Wu, Dr. Ruey S. Tsay, Dr. Michael L. Stein Indian Statistical Institute , Kolkata, WB, India. Master of Statistics (M. Stat.) May 2013 <ul style="list-style-type: none">First Division with Distinction, Specialization: Mathematical Statistics and ProbabilityThesis: Association analysis for identifying rare genetic variants, Advisor: Dr. Saurabh Ghosh Bachelor of Statistics (B. Stat.) May 2011 <ul style="list-style-type: none">First Division with Distinction	
CONSULTING SERVICES	DBS Bank , Singapore 2023 <ul style="list-style-type: none">Topic: Value of data joint study. Real Estate Research Initiative (IIMB-RERI) , Bengaluru, India Since 2023 <ul style="list-style-type: none">Topic: Developing a commercial rental index through spatial modeling. SportsKPI , Bengaluru, India 2022-23 <ul style="list-style-type: none">Topic: Valuation of a Kabaddi player and its use in building strategies.	
DOCTORAL STUDENTS	PhD thesis advisor: <ul style="list-style-type: none">Anchal Soni, Decision Sciences, Indian Institute of Management Bangalore. Feb 2023 Thesis: Methods of analyzing structural breaks in multivariate time series: Applications to financial data.Siddharth Rawat, Decision Sciences, Indian Institute of Management Bangalore. May 2023 Thesis: Spatio-temporal models in epidemiology and climate change.Kapil Gupta, Decision Sciences, Indian Institute of Management Bangalore. (Exp) 2025 Thesis: Analyzing house price dynamics using novel spatio-temporal methods.Kunal Rai, Decision Sciences, Indian Institute of Management Bangalore. (Exp) 2026 Thesis: Nonparametric methods and PINN in quantile regression for time series data. PhD thesis co-advisor: <ul style="list-style-type: none">Archi Roy, Dept of Mathematics, Indian Institute of Science Education & Research Pune. (Exp) 2025Chinmay 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) 2024M Mareeswaran, Finance & Accounting, Indian Institute of Management Bangalore. (Exp) 2025	

TEACHING

Course instructor, at Indian Institute of Management Bangalore:

- Multivariate Statistics (Core for PhD students) Spring, 2021 - 2024
- Sports Analytics (Elective for MBA students) Fall, 2023
- Decision Sciences I (Core for MBA students) Fall, 2020 - 2023
- Statistical Inference (Core for PhD students) Winter, 2020

Executive Education Programme, at Indian Institute of Management Bangalore:

- Predictive Analytics for Business Forecasting (10 sessions) Winter, 2024
- Business Analytics and Intelligence (3 sessions) Fall, 2022 & 2023

Course instructor, at University of Chicago:

- Introductory Statistics, Chicago Academic Achievement Program (UG) Summer, 2015 & 2017
- Statistical Models and Methods I (UG) Winter, 2015

RESEARCH
GRANTS

India-Israel Joint Research Cooperation (IIJRC) Grant, 10th CFP-2023.

- Granted jointly by Department of Science & Technology, India, and Ministry of Innovation, Science & Technology, Israel.
- Co-PI: Prof. Itai Dattner, University of Haifa, Israel.
- Project: Hybrid-AI Quantile Regression Combining Nonparametric Statistical Methods and Physics-Informed Neural Networks for Analysing Spatio-temporal Climate Data.
- Amount: INR 1.6 million for two years (2024 – 2025).

Research Seed Grant from IIM Bangalore, India:

- 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 Chair Grant from IIM Bangalore, India:

- Amount: INR 900,000 for three years (March 2020 to February 2023).

JOURNAL
PUBLICATIONS

- **Deb, S.**, Jana, K. (2023) Nonparametric quantile regression for time series with replications and its application to climate data. Accepted in Statistical Science. [\[preprint\]](#)
- 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. [\[preprint\]](#)
- 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. [\[publication\]](#)
- **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. [\[publication\]](#)
- 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. [\[publication\]](#)
- 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. [\[publication\]](#)
- **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. [\[publication\]](#)
- 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. [\[publication\]](#)
- **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. [\[publication\]](#)
- 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. [\[publication\]](#)
- **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. [\[publication\]](#)

- **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. [\[publication\]](#)
- 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). [\[publication\]](#)
- **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. [\[publication\]](#)
- **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. [\[publication\]](#)
- **Deb, S.** (2019). VAR Model Based Clustering Method for Multivariate Time Series Data. *Journal of Mathematical Sciences*, 237(6), 754-765. [\[publication\]](#)
- Prickett, K.C., Guiterrez, C., **Deb, S.** (2019). Family Firearm Ownership and Firearm-related Mortality among Young Children: 1976-2016. *Pediatrics*, 143(2), e20181171. [\[publication\]](#)
- 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. [\[publication\]](#) [\[R package\]](#)
- **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. [\[publication\]](#)
- Zechner, C., **Deb, S.**, Koepl, H. (2013). Marginal Dynamics of Stochastic Biochemical Networks in Random Environments. In *Control Conference (ECC), 2013 European*, p. 4269-4274, IEEE. [\[publication\]](#)

PREPRINTS AND
SUBMITTED
ARTICLES

- **Deb, S.**, Das, S. (2023+). Optimal selection of the starting lineup for a football team. Under review at *Journal of Quantitative Analysis in Sports*. [\[preprint\]](#)
- Chattopadhyay, A., **Deb, S.** (2022+) A spatio-temporal model for binary data and its application in analyzing the levels of COVID-19 spread. Under major revision at *ASTA Advances in Statistical Analysis*.
- Gupta, K., Krishnamurthy, V., **Deb, S.** (2022+). What elements of opening set influence the outcome of a tennis match? In-depth analysis of Wimbledon data. Under major revision at *IIMB Management Review*.
- Paul, M., Roy, R., **Deb, S.** (2022+). Effect of influence in voter models and its application in detecting frauds in an election. Under major revision at *ASTA Advances in Statistical Analysis*.
- Bag, S., Gupta, K., **Deb, S.** (2022+). A review and recommendations on variable selection methods in regression models for binary data. Under resubmission at *International Statistical Review*. [\[preprint\]](#)
- **Deb, S.**, Roy, R., Das, S. (2022+). Forecasting elections from partial information using a Bayesian model for a multinomial sequence of data. Under review at *Journal of Forecasting*. [\[preprint\]](#).
- Rawat, S., Durrant, A., Simpson, A., Nielson, G., Berrett, C, **Deb, S.** (2023+) A Bayesian approach to identify changepoints in spatio-temporal ordered categorical data: An application to COVID-19 data. Currently being prepared for submission. [\[preprint\]](#)

BOOK (With D. Dey) *Mathematical Techniques for Competitive Examinations*. First edition in 2023, published by Orient Blackswan Pvt Ltd. ISBN: 9393330107.

HONORS

At Indian Institute of Management Bangalore:

- Excellence in Teaching Award 2021-22

At University of Chicago:

- International House Ralph W. Nicholas Fellowship 2017-18
- Graduate Council Travel Fund Award 2017
- Runner-up for Department of Statistics Consulting Award 2016
- Nominated for Best Teaching Assistant in Physical Sciences Division Winter 2014

Earlier awards:

- Kishore Vaigyanik Protsahan Yojana scholarship, Indian Institute of Science 2007 to 2013
- Selected for International Mathematical Olympiad Training Camp, India 2007 & 2008

PROFESSIONAL SERVICES	<p>Administrative roles, at Indian Institute of Management Bangalore:</p> <ul style="list-style-type: none"> • Doctoral Program Coordinator, Decision Sciences Area. Since 2023 • Mentor in Pre-doctoral Programme, Decision Sciences Area. Since 2021 <p>Session chairs, at the following conferences:</p> <ul style="list-style-type: none"> • (Upcoming) EcoSta 2024, Beijing, China. Jul 2024 • EcoSta 2023, Tokyo, Japan. Aug 2023 • 14th and 15th CMStatistics, London, UK. Dec, 2021 & 2022 • IISA Conference, Bengaluru, India. Dec 2022 <p>Reviewer, for the following journals:</p> <ul style="list-style-type: none"> • Biometrics • BMC Public Health • Electronic Journal of Statistics • Journal of Behavioral and Experimental Finance • Journal of Multivariate Analysis • Journal of the Royal Statistical Society: Series A and Series C • Sankhya A and Sankhya B • Scientific Reports • Statistics and Probability Letters
LATEST SEMINARS	<ul style="list-style-type: none"> • (Upcoming) Nonparametric estimation of shape-constrained time series regression model, RMS Annual Conference 2023, Guwahati, India. Dec 2023 • Using t-SNE in analyzing multivariate time series data, EcoSta 2023, Tokyo, Japan. Aug 2023 • Nonparametric methods to deal with quantile regression problems in time series and spatio-temporal settings. Symposium, National University of Singapore, Singapore. May 2023 • 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 • A Bayesian approach to identify changepoints in spatio-temporal ordered categorical data. IISA 2022 Conference, Bengaluru, India. Dec 2022 • Analyzing count data using a time series model with an exponentially decaying covariance structure. EURO 2022 Conference, Finland. Jul 2022 • A goal based index to analyze the competitive balance of a football league. 8th Western Conference on Football and Finance, Reading, UK. May 2022 • Developing statistical methods in Health (Epidemiological) Data. SERB-AV Workshop 2022, Indian Institute of Information Technology, Dharwad, India. May 2022 • 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 • Impact of global warming on rainfall: A Spatio-temporal study. RSS International conference 2021 (virtual), Manchester, UK. Sep 2021 • A Mathematical Take on the Competitive Balance of a Football League. Guest lecture (virtual), Mathematics of Sports, Stanford University, Stanford, USA. May 2021
SKILLS	<p>Technical strength:</p> <ul style="list-style-type: none"> • Proficient: R, MATLAB, L^AT_EX, Microsoft Office. • Working knowledge: Python, SQL, C. <p>Languages:</p> <ul style="list-style-type: none"> • Bilingual proficiency: English, Bengali. • Intermediate proficiency: Hindi. • Basic proficiency: Portuguese.