

# Soudeep Deb

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CURRENT POSITION	<b>Associate Professor and Chairperson</b> Decision Sciences Area Indian Institute of Management Bangalore, India.	Webpage: <a href="https://soudeepd.github.io">soudeepd.github.io</a> Phone: +91 80-26993387 E-mail: <a href="mailto:soudeep@iimb.ac.in">soudeep@iimb.ac.in</a>
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	<b>Indian Institute of Management Bangalore</b> , Bengaluru, KA, India.	Mar 2020 - Present
	<ul style="list-style-type: none"><li>Chairperson, Decision Sciences Area.</li><li>Associate Professor, Decision Sciences Area.</li><li>Assistant Professor, Decision Sciences Area.</li></ul>	Apr 2024 - Present Jul 2024 - Present Mar 2020 - Jul 2024
	<b>NBC Universal Media, LLC.</b> , New York, NY, USA.	Sep 2018 - Feb 2020
	<ul style="list-style-type: none"><li>Senior Lead Data Scientist, Decision Sciences Division.</li></ul>	
EDUCATION	<b>University of Chicago</b> , Chicago, IL, USA.	
	<b>Ph.D., Statistics</b>	Aug 2018
	<ul style="list-style-type: none"><li>Thesis: Irregular spaced random field, Spatio-temporal data and Clustering of time series</li><li>Advisory committee: Dr. Wei Biao Wu, Dr. Ruey S. Tsay, Dr. Michael L. Stein</li></ul>	
	<b>Indian Statistical Institute</b> , Kolkata, WB, India.	
	<b>Master of Statistics (M. Stat.)</b>	May 2013
	<ul style="list-style-type: none"><li>First Division with Distinction, Specialization: Mathematical Statistics and Probability</li><li>Thesis: Association analysis for identifying rare genetic variants, Advisor: Dr. Saurabh Ghosh</li></ul>	
	<b>Bachelor of Statistics (B. Stat.)</b>	May 2011
	<ul style="list-style-type: none"><li>First Division with Distinction</li></ul>	
RESEARCH GRANTS	<b>India-Israel Joint Research Cooperation (IIJRC) Grant</b> , 10th CFP-2023.	
	<ul style="list-style-type: none"><li>From Department of Science &amp; Technology, India, and Ministry of Innovation, Science &amp; Technology, Israel.</li><li>Co-PI: Prof. Itai Dattner, University of Haifa, Israel.</li><li>Project: Hybrid-AI Quantile Regression Combining Nonparametric Statistical Methods and Physics-Informed Neural Networks for Analysing Spatio-temporal Climate Data.</li><li>Amount: INR 1.6 million for two years (2024 – 2025).</li></ul>	
	<b>Research Travel Grant</b> from London Mathematical Society, United Kingdom (UK).	
	<ul style="list-style-type: none"><li>Offered under Scheme 5 ‘Collaborations with Developing Countries’ Grant</li><li>Co-PI: Prof. Rishideep Roy, University of Essex, UK.</li><li>Amount: GBP 2200 for collaborative research visit to the UK (December 2024)</li></ul>	
	<b>Research Seed Grant</b> from IIM Bangalore, India.	
	<ul style="list-style-type: none"><li>Project: Nonparametric methods of structural break detection in time series</li><li>Amount: INR 500,000 for 18 months (July 2024 to December 2025)</li></ul>	
	<b>Research Seed Grant</b> from IIM Bangalore, India.	
	<ul style="list-style-type: none"><li>Project: New techniques to analyze categorical and discrete time series data</li><li>Amount: INR 300,000 for two years (August 2021 to December 2023)</li></ul>	
	<b>Young Faculty Research Chair Grant</b> from IIM Bangalore, India:	
	<ul style="list-style-type: none"><li>Amount: INR 900,000 for three years (March 2020 to February 2023)</li></ul>	

DOCTORAL  
STUDENTS

**PhD thesis advisor:**

- 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:**

- 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:**

- Sajad S Santhosh, Public Policy, Indian Institute of Management Bangalore. (Exp) 2025
- M Mareeswaran, Finance & Accounting, Indian Institute of Management Bangalore. (Exp) 2025
- Sabhya Rai, Economics, Indian Institute of Management Bangalore. (Exp) 2026

BOOKS

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

JOURNAL &  
CONFERENCE  
PUBLICATIONS

- **Deb, S.**, Jana, K. (2024) Nonparametric quantile regression for time series with replicated observations and its application to climate data. *Statistical Science*, 39(3), 428-448. [\[publication\]](#)
- **Deb, S.**, Roy, R., Das, S. (2024). Forecasting elections from partial information using a Bayesian model for a multinomial sequence of data. *Journal of Forecasting*, 43(6), 1814-1834. [\[publication\]](#)
- Divekar, C., **Deb, S.**, Roy, R. (2024) Real-time forecasting within soccer matches through a Bayesian lens. *Journal of the Royal Statistical Society Series A: Statistics in Society*, 187(2), 513–540. [\[publication\]](#)
- Chattopadhyay, A., **Deb, S.** (2024) A spatio-temporal model for binary data and its application in analyzing the levels of COVID-19 spread. *AStA Advances in Statistical Analysis*. [\[publication\]](#)
- Lakshmi M.V., **Deb, S.**, Sen, R. (2024) Environmentally Responsible Index Tracking: Maintaining Performance while Reducing Carbon Footprint of the Portfolio. *Statistics and Applications* (forthcoming).
- Gupta, K., Krishnamurthy, V., **Deb, S.** (2024) What elements of the opening set influence the outcome of a tennis match? An in-depth analysis of Wimbledon data. *IIMB Management Review*. [\[publication\]](#)
- Roy, A., **Deb, S.**, Chakarwari, D. (2024) Impact of COVID-19 on public social life and mental health: A statistical study of Google Trends data from the USA. *J. Appl. Stat.*, 51(3), 581-605. [\[publication\]](#)
- 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*, 187(1), 39-61. [\[publication\]](#)
- **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., Guterrez, 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.**, Koeppl, H. (2013). Marginal Dynamics of Stochastic Biochemical Networks in Random Environments. In Control Conference (ECC), 2013 European, p. 4269-4274, IEEE. [\[publication\]](#)
- **Deb, S.**, Neves, C., Roy, S. (2024+) Nonparametric quantile regression for spatio-temporal processes. Under review. [\[preprint\]](#)
- Roy, A., Podder, M., **Deb, S.** (2024+) Nonparametric method of structural break detection in stochastic time series regression model. Under review. [\[preprint\]](#)
- Deshmukh, S., **Deb, S.** (2024+) A survey of statistical and machine learning methods of quantile regression in time series and their suitability in predicting dengue outbreaks. Under first revision. Preprint on request.
- Sen, S., **Deb, S.** (2024+) tSNE-Spec: A new classification method for multivariate time series data. Under review. Preprint available on request.
- **Deb, S.**, Das, S. (2024+). Optimal selection of starting lineup for a football team. Under review. [\[preprint\]](#)
- Gupta, K., **Deb, S.** (2024+) A divide-and-conquer approach for spatio-temporal analysis of large house price data from Greater London. Under review. [\[preprint\]](#)
- Rawat, S., **Deb, S.** (2024+). Impact of rising temperature on rainfall: A spatio-temporal study from Bangladesh. Under review. Preprint available on request.
- Soni, A., **Deb, S.**, Das, D., Zaremba, A. (2023+). Structural Breaks and Value-at-Risk in Multivariate Time Series Data: Implications for Cryptocurrency Investors. Under review. Preprint available on request.
- 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. [\[preprint\]](#)
- 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. [\[preprint\]](#)
- Bag, S., Gupta, K., **Deb, S.** (2022+). A review and recommendations on variable selection methods in regression models for binary data. Under resubmission. [\[preprint\]](#)

PREPRINTS &  
SUBMITTED  
ARTICLES

TEACHING

**Course instructor**, at Indian Institute of Management Bangalore:

- Advanced Statistics for Business (Core for BBA students)
- Advanced Statistical Methods & Computing (Core for PhD students)
- Multivariate Statistics (Core for PhD students)

Winter, 2025

Fall, 2024

Spring, 2021 - 2024

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

**Executive Education Programme**, at Indian Institute of Management Bangalore:

- Predictive Analytics for Business Forecasting (Programme Director) Jan 2025
- Data Science & Artificial Intelligence (5 sessions) Sep 2024
- MDP for Food Corporation of India (8 sessions) Apr 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

#### CONSULTING SERVICES

**Smart City Mission, Ministry of Housing & Urban Affairs**, India 2024

- Topic: Improvement in quality of education through smart classrooms.

**DBS Bank**, Singapore 2023

- Topic: Value of data joint study.

**Real Estate Research Initiative (IIMB-RERI)**, Bengaluru, India Since 2023

- Topic: Developing a commercial rental index through spatial modeling.

**SportsKPI**, Bengaluru, India 2022-23

- Topic: Valuation of a Kabaddi player and its use in building strategies.

#### LATEST SEMINARS

- Nonparametric Regression of Spatio-temporal Data using Infinite-dimensional Covariates. IISA Conference 2024, Cochin, India. Dec 2024
- Structural breaks in the spatial network of real estate dynamics: A study of UK property transactions. Essex Data Science Seminar Series, University of Essex, Colchester, UK. Dec 2024
- Structural breaks in the spatial network of real estate dynamics: A study of UK property transactions. CMStatistics Conference 2024, London, UK. Dec 2024
- Nonparametric changepoint detection in time series data. COMPSTAT 2024, Giessen, Germany. Sep 2024
- A divide-and-conquer approach for spatio-temporal analysis of large house price data from Greater London. EcoSta Conference 2024, Beijing, China. Jul 2024
- A workshop on 'Data summarisation and Visual Storytelling using Statistics', PES University Research Workshop Series, Bengaluru, India. Jul 2024
- Real-time forecasting in sports. AI Frontiers Series, Commonwealth Bank of Australia (virtual). Jun 2024
- A workshop on Sports Analytics. Conference on Excellence in Research & Education, Indian Institute of Management Indore, India. May 2024
- Introduction to Bayesian methods in Econometrics and Statistics. IIMK Skill-Building Series (virtual), Kozhikode, India. Mar 2024
- 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
- A goal based index to analyze the competitive balance of a football league. 8th Western Conference on Football and Finance, Reading, UK. May 2022

HONORS	<b>At Indian Institute of Management Bangalore:</b>	
	• Excellence in Teaching Award	2021-22, 2023-24
	<b>At University of Chicago:</b>	
	• International House Ralph W. Nicholas Fellowship	2017-18
	• Graduate Council Travel Fund Award	2017
PROFESSIONAL SERVICES	• Runner-up for Department of Statistics Consulting Award	2016
	• Nominated for Best Teaching Assistant in Physical Sciences Division	Winter 2014
	<b>Earlier awards:</b>	
	• Kishore Vaigyanik Protsahan Yojana scholarship, Indian Institute of Science	2007 to 2013
	• Selected for International Mathematical Olympiad Training Camp, India	2007 & 2008
	<b>Administrative roles</b> , at Indian Institute of Management Bangalore:	
	• Chairperson, Decision Sciences Area.	Apr 2024 - present
	• Doctoral Program Coordinator, Decision Sciences Area.	2023-24
	• Mentor in Pre-doctoral Programme, Decision Sciences Area.	2021 - 2024
	<b>Editorial Board member</b> , for the following journal:	
SKILLS	• Scientific Reports, Associate Editor in the Climate Change track.	2024 - present
	<b>Session chairs</b> , at the following conferences:	
	• (Upcoming) IISA Conference, Cochin, India.	Dec 2024
	• EcoSta 2024, Beijing, China	Jul 2024
	• EcoSta 2023, Tokyo, Japan	Aug 2023
	• 14th and 15th CMStatistics, London, UK	Dec, 2021 & 2022
	<b>Reviewer</b> , for many journals including the following:	
	• Biometrics	
	• Electronic Journal of Statistics	
	• IIMB Management Review	
	• Journal of Multivariate Analysis	
	• Journal of Sports Analytics	
	• Journal of the Royal Statistical Society: Series A and Series C	
	• Sankhya A and Sankhya B	
	• Scientific Reports	
	• Statistics and Probability Letters	
	<b>Technical strength:</b>	
	• Proficient: R, MATLAB, $\text{\LaTeX}$ , Microsoft Office, Google Suite	
	• Working knowledge: Python, SQL, C, C++	
	<b>Languages:</b>	
	• Bilingual: English, Bengali; Intermediate: Hindi; Basic: Portuguese.	