SAYANTAN BANERJEE

Operations Management and
Quantitative Techniques Area
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Education

2010 – 2014	**Ph.D., Statistics**

Department of Statistics, North Carolina State University,
Raleigh, NC, USA
Advisor : Dr. Subhashis Ghoshal
Topic: Bayesian Inference for High Dimensional Models: Convergence properties and Computational Issues
Recipient of the L.J. Savage Award (Honorable mention) for the Best Dissertation in Bayesian Statistics (Theory & Methods), presented by the International Society for Bayesian Analysis.

2008 – 2010	**M.Stat., Statistics**

Indian Statistical Institute, Calcutta, India
First class with Distinction

2005 – 2008	**B. Sc. (Honors), Statistics**

St. Xavier's College, Calcutta, India
First class, placed 1st in the batch

Research Interests

Bayesian High-dimensional inference, Bayesian Asymptotics, Biostatistics, Graphical models.

Experience

June, 2021 –	**Associate Professor**

Operations Management & Quantitative Techniques Area
Indian Institute of Management, Indore

Apr, 2016 – June, 2021	**Assistant Professor**

Operations Management & Quantitative Techniques Area
Indian Institute of Management, Indore

Jul, 2014 – Feb, 2016	**Postdoctoral Fellow**

Department of Biostatistics, The University of Texas
MD Anderson Cancer Center
Postdoctoral advisor: Dr. Veerabhadran Baladandayuthapani

Other Experience

Apr, 2024 – present	**Chair, Post Graduate Programme (PGP) in Management**

Indian Institute of Management, Indore

Jan, 2024	**Visiting Scientific Researcher** Laboratoire de Probabilités, Statistique et Modélisation Sorbonne Université, Paris
Apr, 2022 – Mar, 2024	**Chair, Research & Publications** Indian Institute of Management, Indore
Aug, 2010 – May, 2014	**Teaching Assistant** Department of Statistics, North Carolina State University
Sept, 2014 – Apr, 2015	**Working group member, SAMSI** Data Integration – TCGA, 2014-15 Program on Beyond Bioinformatics: Statistical and Mathematical Challenges (Bioinformatics)
Sept, 2013 – Apr, 2014	**Working group member, SAMSI** High-dimensional Graphical models, 2013-14 LDHD Program
June, 2013 – Jul, 2013	**Basic Exam Camp Leader** Department of Statistics, North Carolina State University
June, 2012 – Jul, 2012	**Basic Exam Camp Co-leader** Department of Statistics, North Carolina State University
June, 2011 – Jul, 2011	**Research Assistant** Department of Statistics, North Carolina State University Advisor: Dr. Subhashis Ghoshal

Software and Languages known

R, Matlab, Python, Julia, C++, JAGS

Publications

Published/Accepted

1. Curtis, S. M., **Banerjee, S.** and Ghosal, S. (2014). Fast Bayesian Model Assessment for Non-parametric Additive Regression. *Computational Statistics and Data Analysis,* Vol. 71, pp. 347 – 358.

2. **Banerjee, S.** and Ghosal, S. (2014). Posterior convergence rates for estimating large precision matrices using graphical models. *Electronic Journal of Statistics,* Vol. 8, No. 2, pp. 2111 – 2137.
   Recipient of the Best Student Paper Award, Section on Bayesian Statistical Science, American Statistical Association, JSM 2013.

3. **Banerjee, S.** and Ghosal, S. (2014). Bayesian variable selection in generalized additive partial linear models. *Stat,* Vol. 3, Issue 1, pp. 363 – 378.

4. **Banerjee, S.** and Ghosal, S. (2015). Bayesian structure learning in graphical models. *Journal of Multivariate Analysis,* Vol. 136, pp. 147 – 162.

5. Saha, A., **Banerjee, S.**, Kurtek, S., Narang, S., Lee, J., Rao, G., Martinez, J., Bharath, K., Rao, A.U.K., Baladandayuthapani, V. (2016). DEMARCATE: Density-based Mag-

netic Resonance Image Clustering for assessing Tumor Heterogeneity in Cancer. *NeuroImage:Clinical,* Vol. 12, pp. 132 – 143.

6. **Banerjee, S.** (2017). Posterior Convergence Rates for high-dimensional precision matrix estimation using G-Wishart priors. *Stat,* Vol. 6, Issue 1, pp. 207 – 217.

7. **Banerjee, S.** and Ghosal, S. (2017). Discussion of "Sparse graphs using exchangeable random measures" by Francois Caron and Emily Fox. *Journal of the Royal Statistical Society Series B,* Vol. 79, No. 5, pp. 1343.

8. Ha, M. J., **Banerjee, S.**, Akbani, R., Liang, H., Mills, G.B., Do, K. A., and Baladandayuthapani, V. (2018). Personalized Integrated Network Modeling of The Cancer Proteome Atlas. *Scientific Reports*, Vol. 8(1), 14924.

9. **Banerjee, S.**, Akbani, R. and Baladandayuthapani, V. (2019). Spectral Clustering via Sparse Graph Structure Learning with application to Proteomic Signaling Networks in Cancer. *Computational Statistics and Data Analysis: Special Issue on Biostatistics,* Vol. 132, pp. 46 – 69.

10. **Banerjee, S.** and Guhathakurta, K. (2020). Change-point analysis in Financial Networks. *Stat,* Vol. 9(1), e269.

11. Bhattacharyya, R., **Banerjee, S.**, Mohammad, S. and Baladandayuthapani, V. (2021). Network-based modeling of Covid-19 dynamics: Early pandemic spread in India. *Journal of the Indian Statistical Association: Special Issue on Spatio-temporal modeling,* Vol. 59(2).

12. **Banerjee, S.** and Shen, W. (2022). Graph signal de-noising using t-shrinkage priors. *Journal of Statistical Planning and Inference,* Vol. 219, pp. 279 – 305.

13. **Banerjee, S.** (2022). Horseshoe shrinkage methods for Bayesian fusion estimation. *Computational Statistics and Data Analysis,* Vol. 174, 107450.

14. Bhattacharya, R., Burman, A., Singh, K., **Banerjee, S.**, Maity, S., Auddy, A., Rout, S.K., Lahoti, S., Panda, R., and Baladandayuthapani, V. (2022). Role of multiresolution vulnerability indices in COVID-19 spread in India: a Bayesian model-based analysis. *BMJ Open,* 12:e056292.

15. Jiang, X., Livas, S.M., Yin, F., **Banerjee, S.**, Butts, C.T., and Shen, W. (2023). Structure recovery and trend estimation for dynamic network analysis. *Stat,* Vol. 12(1), e593.

16. Sagar, K., **Banerjee, S.**, Datta, J., and Bhadra, A. (2024). Precision Matrix Estimation under the Horseshoe-like Prior–Penalty Dual. *Electronic Journal of Statistics*, Vol. 18(1), pp. 1 – 46.
Winner, International Biometric Society Eastern North American Region's (ENAR) Distinguished Student Paper Awards, ENAR 2022.

17. Datta, J., **Banerjee, S.**, and Dunson, D.B. (2024). Nonparametric Bayes multiresolution testing for high-dimensional rare events. *Journal of Nonparametric Statistics.*

18. Sagar, K., Datta, J., **Banerjee, S.**, and Bhadra, A. (2023). Maximum a Posteriori Estimation in Graphical Models Using Local Linear Approximation. *Stat*, Vol. 13(2), e682.

Technical reports

1. **Banerjee, S.** (2017). Multiple Imputation technique for handling missing data. *IIM Indore Working Paper No. WP/06/2016-17/OMQT*

2. **Banerjee, S.** (2017). Sup-norm consistency results for graphical wavelet clustering. *IIM Indore Working Paper No. WP/07/2016-17/OMQT.*

Book Chapters

1. Guha, S., **Banerjee, S.**, Gu, C. and Baladandayuthapani, V. (2015). Nonparametric Variable Selection, Clustering, and Prediction for Large Biological Datasets. *Nonparametric Bayesian Inference in Biostatistics*, Springer, pp. 175–192.

2. **Banerjee, S.**, Castillo, I. and Ghosal, S. (2022). Bayesian Inference in High-dimensional models. *Accepted for publication in Springer Volume on Data Science in collaboration with International Indian Statistical Association.*

Under revision

1. Burman, A. and **Banerjee, S.** (2021). High-dimensional portfolio optimization using joint shrinkage.

2. Bhadra, A., Sagar, K., **Banerjee, S.**, and Datta, J. (2022+). Graphical Evidence.

3. Mazumdar, S., **Banerjee, S.**, and Bhattacharya, S. (2022+). A New Spatio-Temporal Model Exploiting Hamiltonian Equations.

Research Grants

Grants to Support Research Collaboration by Visiting Other Institutions, 2023. Awarded by IIM Indore. Research grant amount of INR 400,000.

SERB MATRICS Grant 2022. Awarded by the Science & Engineering Research Board (SERB), Government of India. Annual research grant amount of INR 220,000 for three years (Jan, 2023 – Dec, 2025).

Young Faculty Research Chair, Jan, 2019 – Dec, 2021, IIM Indore. Annual Research Grant amount of INR 200,000.

DST INSPIRE Faculty Award 2016. Awarded by the Dept of Science & Technology (DST), Ministry of Science & Technology, Government of India. Research Grant amount of 3,500,000 INR (April, 2016 – April, 2021).

Consultation Projects

Research Consultation project on 'Lung Cancer: Cost of Inaction in India', IIM Indore – AstraZeneca India joint research project (December, 2021 – present).

Teaching

Doctoral level	Advanced Statistical Techniques, Ph.D. (2024)
	Research methods in Statistics, Executive Ph.D. (2018)
Post-graduate level	Introduction to Probability and Statistics I, PGP Term I Core (2017 –)
	Statistical Applications with R, PGP Term IV Elective (2018 –)
	Introduction to Business Statistics, Executive-PGP Term I Core (2017)
	Statistical Foundation for Analytics, Executive-PGP Term III Core (2018)
Under-graduate level	Sampling Distribution and Statistical Inference, IPM Term III Core (2016 –)

	Numerical Analysis, IPM Term IV Core (2016)
	Statistical Methods II, IPM Term IV Core (2016)
	Integral Calculus, IPM Term II Core (2017)
	Multivariate Analysis, IPM Term VI Elective (2018)
	Bayesian Statistics, IPM Term VI Elective (2020, 2023)
Executive Education	Introduction to Big Data (Faculty Development Programme, IIM Indore - 2018, '19)
	Bayesian Inference (Faculty Training Programme, IIT Indore, 2020)
	HR Analytics (Management Development Programme, IIM Indore - 2023, '24)
	Data Mining (Executive Education Programme, IIM Indore - 2023)

Current Students

Ph.D. students

1. **Sultan Amed**, Ph.D. student, OM & QT Area, IIM Indore
2. **Venkata Pradeep Tatiraju**, Ph.D. student, OM & QT Area, IIM Indore

Past Students

1. **Abhijoy Saha**, PhD student at Department of Statistics, The Ohio State University
   2015 Summer Intern at UT MD Anderson Cancer Center, Houston, TX
   Joint mentoring with Dr Veera Baladandayuthapani and Dr Arvind Rao.

2. **Anik Burman**, PhD student, Johns Hopkins University

3. **Anagh Chattopadhyay**, PhD student, Johns Hopkins University

4. **Shourjya Bhattacharya**, MS student in Data Science and Management program, IIT Indore - IIM Indore

Honors and Awards

Sep, 2023	IIM Indore Best Teacher Award 2023.
Jan, 2023	Grants to Support Research Collaboration by Visiting Other Institutions, awarded by IIM Indore.
Dec, 2022	SERB MATRICS Grant, awarded by the Science & Engineering Research Board, Government of India.
Nov, 2018	IIM Indore Young Faculty Research Chair Jan, 2019 – Dec, 2021.
Oct, 2017	IIM Indore Best Teacher Award 2017.
Feb, 2016	DST INSPIRE Faculty Award, given by the Dept of Science & Technology, Ministry of Science & Technology, Government of India.
Aug, 2015	L.J. Savage Award, Honorable Mention, for the best dissertation in Bayesian Statistics (Theory and Methods), presented by ISBA.

June, 2015	Travel award to attend 10th Conference on Bayesian Nonparametrics (22–26 June, 2015), Raleigh, NC, USA.
Jan, 2015	Travel award from ISBA to attend Joint Statistical Meetings (JSM), 2015 (8–13 August, 2015), Seattle, Washington, USA.
Feb, 2013	NSF Travel Award to attend 9th Conference on Bayesian Nonparametrics (10–14 June, 2013), Amsterdam, The Netherlands.
Jan, 2013	Student Paper Competition/Travel Award, Section on Bayesian Statistical Science (SBSS), Joint Statistical Meetings (JSM) 2013, Montréal, Canada.
May, 2012	Travel grant from University of Bristol to attend 'Structure and Uncertainty' workshop (24–27 Sept, 2012) in Bristol, UK.
Mar, 2012	Honorary membership to North Carolina Alpha Chapter of Mu Sigma Rho at NCSU, Statistical Honorary Society.
Mar, 2012	Nominated from Statistics department at NCSU for presentation of research work at the Seventh Annual Graduate Research Symposium, NCSU.
Apr, 2011	Best Poster Award, IISA Conference, Raleigh, North Carolina.
2005 – 2008	Awards for the top rank in Dept. of Statistics, St. Xavier's College, Calcutta, India.

Conferences/Presentations

May, 2024	Workshop on High-dimensional Statistical Inference, 14th International Conference on Excellence in Research and Education (CERE), IIM Indore.
Feb, 2024	IIT Indore Foundation Day Invited Seminar speaker, Dept. of Mathematics, IIT Indore.
Jan, 2024	Statistics Seminar Invited Speaker, LPSM, Sorbonne Université, Paris.
Dec, 2023	Invited Speaker, StatFin Conference, Chennai Mathematical Institute, Chennai.
Dec, 2023	Invited Seminar Speaker, Theoretical Statistics and Mathematics Unit, Indian Statistical Institute Kolkata.
Jan, 2023	Invited Seminar Speaker, Dept. of Statistics, St. Xavier's College, Kolkata.
Jan, 2023	Instructor, Biostatistics Workshop, Dept. of Microbiology, Ramakrishna Mission Vivekananda Centenary College, Rahara, West Bengal.
Dec, 2022	Instructor, Workshop on Bayesian Inference and Computation, Indian Statistical Institute Kolkata.
July, 2022	Invited Speaker, 6th EAC-ISBA Conference, Taiwan.

May, 2022	Invited Seminar Speaker, Interdisciplinary Statistical Research Unit, Indian Statistical Institute Kolkata.
Feb, 2022	Young Faculty Research Chair Annual Seminar, IIM Indore.
Aug, 2021	Invited Speaker, Session on 'Bayesian Methods for Complex Data Analysis', Joint Statistical Meetings 2021 (Virtual).
June, 2021	Invited Speaker, ISBA World Meeting 2021 (Virtual).
Apr, 2021	Young Faculty Research Chair Annual Seminar, IIM Indore.
Nov, 2020	Invited Seminar Speaker, School of Mathematics and Statistics, The Open University, UK.
Oct, 2020	Invited Webinar Speaker, GSK 'Trust in Science' program.
Oct, 2020	Webinar Speaker, 'Role of Biostatistics in fighting COVID-19', IIM-Indore Webinar Series on COVID-19.
Dec, 2019	Invited Speaker, 2019 Indian International Statistical Conference, Mumbai, India.
July, 2019	Invited Speaker, Session on 'Bayesian Structure Learning', Joint Statistical Meetings 2019, Denver, Colorado, USA.
June, 2019	Invited Seminar Speaker, Indian Statistical Institute, Kolkata, India.
Sept, 2018	Invited Seminar Speaker, Indian Institute of Management Bangalore, India.
June, 2018	Invited Speaker, Session on 'Graphical Models', Objective Bayes Section, ISBA World Meeting 2018, Edinburgh, UK.
Jan, 2018	Contributed Speaker, PCM 125 Conference, Indian Statistical Institute, Kolkata, India.
Jan, 2018	Invited Speaker, International Conference on "New Paradigms in Statistics for Scientific and Industrial Research", Kolkata, India.
Dec, 2017	Invited Speaker, 2017 Indian International Statistical Conference, Hyderabad, India.
June, 2017	Contributed Speaker, 11th Conference on Bayesian Nonparametrics, Paris, France.
Dec, 2016	Invited Speaker, Applied Statistics Unit Seminar, Indian Statistical Institute, Kolkata, India.
Jan, 2016	Invited Speaker, Bayesian Seminar, Dept. of Statistics, North Carolina State University, Raleigh, NC.
Nov, 2015	iBright Conference, Dept. of Biostatistics, MD Anderson Cancer Center, Houston, TX.

Sept, 2015	5th Annual Postdoctoral Research Symposium, MD Anderson Cancer Center, Houston, TX.
Aug, 2015	Joint Statistical Meetings 2015, Seattle, Washington, USA. Invited Speaker, Savage Award Session.
June, 2015	Invited Speaker, 10th Conference on Bayesian Nonparametrics, Raleigh, NC, USA.
Mar, 2015	Contributed Speaker, ENAR Spring Meeting 2015, Miami, Florida, USA.
Jan, 2014	Invited Seminar Speaker, The University of Texas MD Anderson Cancer Center, Houston, Texas, USA.
Oct, 2013	Working Group Meeting, High-dimensional Graphical Models, SAMSI, Durham, NC, USA.
Sept, 2013	SAMSI Workshop on Low-dimensional Structure in High-dimensional Systems (LDHD), Research Triangle Park, Durham, NC, USA.
Aug, 2013	Joint Statistical Meetings 2013, Montréal, Canada. Invited Speaker, SBSS Student Paper Award Session.
June, 2013	Contributed Poster Presenter, 9th Conference on Bayesian Nonparametrics, Amsterdam, The Netherlands.
Dec, 2012	Contributed Speaker, Eighth International Triennial Calcutta Symposium on Probability and Statistics, Kolkata, India.
Sept, 2012	Structure and Uncertainty Workshop, University of Bristol, UK.
Sept, 2012	Invited Speaker, Bayesian Statistics Working Group seminar, NCSU.
Mar, 2012	Contributed Poster Presenter, Seventh Annual Graduate Research Symposium, NCSU.
Apr, 2011	Contributed Poster Presenter, Indian International Statistical Association Conference on Probability and Statistics, Raleigh, NC, USA.

Memberships

American Statistical Association (ASA)

International Indian Statistical Association (IISA) – Life member

International Society for Bayesian Analysis (ISBA)

Institute of Mathematical Statistics (IMS)

Mu Sigma Rho, Statistical Honorary Society

Refereed for journals

Electronic Journal of Statistics, Journal of Applied Statistics, Computational Statistics and Data Analysis, PloS One, Biostatistics, Journal of the Royal Statistical Society - Series C, Biometrics, Sankhya - A, Sankhya - B, Bayesian Analysis, The Annals of Statistics, Journal of Computational and Graphical Statistics, JASA - Theory and Methods, Brazilian Journal

of Probability and Statistics, Metrika, Technometrics, Journal of Medical Internet Research, Epidemiologic Methods, Journal of Statistical Planning and Inference.

Grant reviews

Methodology, Measurement, and Statistics (MMS) Program at the U.S. National Science Foundation (NSF).

Seed Money Project Scheme, IIM Indore.

Services

Current Services

Chair, Post Graduate Programme in Management, IIM Indore (April 2024 – present)

Programme Review Committee Member, Doctoral Programme in Management (DPM), IIM Indore, (March 2024 – present)

Executive Committee Member, DPM, EDPM, and EDPMG, IIM Indore (April 2023 – present)

Member, Research & Publications Committee, IIM Indore (April 2024 – present)

Ex-officio member of: PGP EC [1], PGP-HRM [2] EC, IPM [3] EC, Admissions Committee, Career Services Committee, Hostel and Student Affairs Committee, Library Committee, Infrastructure Planning Committee, Staff Development and Evaluation Committee, Need Based Finanical Assistance Scheme Committee, Investment Committee, Industry Interface Cell, IIM Indore (April 2024 – present)

Associate Editor, Journal of Contemporary Business Studies (2022 – present)

Associate Editor, Sankhya-A (2021 – present)

Secretary, India Chapter, International Society for Bayesian Analysis (ISBA) (2019 – present)

Past Services

Chair, Research & Publications, IIM Indore (April 2022 – March 2024)

Programme Review Committee Member, Integrated Program in Management (IPM), IIM Indore, 2022

Chair, Area Comprehensive Examination Committee, OM & QT Area, IIM Indore, 2024

Steering Committee Member, Conference on Excellence in Research and Education (CERE), IIM Indore, 2024

Editor-in-Chief, International Indian Statistical Association (IISA) Newsletter (2022 – 2024)

Sub-Editor, International Indian Statistical Association (IISA) Newsletter (2021)

Associate Program Chair, 2019 IISA Conference, Mumbai, India

Scientific Program Committee member, 2019 IISA Conference, Mumbai, India

Faculty Recruitment Committee member, OM & QT Area, IIM Indore (May 2017 – April 2019)

Student Paper Award Jury member, IISA Conference 2017, Hyderabad, India

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[1] EC: Executive Committee
[2] Post Graduate Programme in Human Resources Management
[3] Integrated Programme in Management

Programme Review Committee member, Post Graduate Diploma in Management for Executives in Mumbai (PGPMX), IIM Indore, 2016

Student Paper Review Committee member, Section on Bayesian Statistical Science (SBSS) Student Paper Competition Award, JSM 2016

Computing Liaison, Department of Statistics, North Carolina State University, 2012 – 2013