Soham Jana — Curriculum Vitae

Assistant Professor
University of Notre Dame
Department of Applied and Computational
Mathematics and Statistics
Office: 101 E Crowley Hall

Updated on: April 6, 2026
Website: janasoham.github.io
Email: sjana2-at-nd-dot-edu
Phone: +1 574-631-5503
Location: IN, USA-46556

Research interests

Theoretical and methodological aspects of high-dimensional statistics, neural networks, mixture modeling, distance based estimators.

Education

PhD. in Statistics and Data Science May 2022
Yale University, New Haven, CT, USA
Thesis: Learning non-parametric and high-dimensional distributions via information-theoretic methods
Advisor: Prof. Yihong Wu

Master of Statistics (Hons.) (First class with distinction) May 2017
Indian Statistical Institute, Kolkata, West Bengal, India
Specialization: Theoretical Statistics
Dissertation: Characterization of single-integral non-kernel divergences
Advisor: Prof. Ayanendranath Basu

Bachelor of Statistics (Hons.) (First class with Distinction) May 2015
Indian Statistical Institute, Kolkata, West Bengal, India

Work experiences

University of Notre Dame, Notre Dame, IN, USA

Assistant Professor, Department of Applied and Computational Mathematics and Statistics. August 2024 – Current

Princeton University, Princeton, NJ, USA

Postdoc, Department of Operations Research and Financial Engineering June 2022 – July 2024
Hosts: Prof. Sanjeev Kulkarni and Prof. Jianqing Fan

Researcher, The First Republic Bank Research and Lifelong Learning Program June 2022 – May 2023

Lecturer Spring 2023 and Fall 2023

Grants and awards

Professional Development

Kaneb Center Course Design Academy, University of Notre Dame 2024 – 2025
Award Amount: USD 5000

Journal publications ("∗": Authors list not in alphabetical order)

1. Jana, S., Yang, K., & Kulkarni, S. (2026).* **Adversarially robust clustering with optimality guarantees** in IEEE Transactions on Information Theory, vol. 72, no. 1, pp. 478-500, Jan. 2026, doi: 10.1109/TIT.2025.3628160.

2. Jana, S., Polyanskiy, Y., & Wu, Y. (2025). **Optimal empirical Bayes estimation for the Poisson model via minimum-distance methods**. Information and Inference: A Journal of the IMA, Volume 14, Issue 4, December 2025, iaaf027.

3. Jana, S., Fan, J., & Kulkarni, S. (2025).* **A provable initialization and robust clustering method for general mixture models** in IEEE Transactions on Information Theory, vol. 71, no. 9, pp. 7176-7207, Sept. 2025.

4. Jana, S., Li, H., Yamada, Y., & Lindenbaum, O. (2023). **Support recovery with Stochastic Gates: theory and application for linear models**. Elsevier Signal Processing (2023), 213, p.109193.

5. Han, Y., Jana, S., & Wu, Y. (2023). **Optimal Prediction of Markov Chains With and Without Spectral Gap**, in IEEE Transactions on Information Theory, vol. 69, no. 6, pp. 3920-3959, June 2023, doi: 10.1109/TIT.2023.3239508. (**Extended from the NeurIPS version with analysis of higher-order Markov chains and different loss functions**)

6. Jana, S. & Basu, A. (2019).* **A characterization of all single-integral, non-kernel divergence estimators**. IEEE Transactions on Information Theory, 65(12), 7976-7984.

Conference publications ("∗": Authors list not in alphabetical order)

1. Jana, S., Polyanskiy, Y., Teh, A. & Wu, Y. (2023). **Empirical Bayes via ERM and Rademacher complexities: the Poisson model**. In Conference on Learning Theory 2023 Jul 15, PMLR 195:5199-5235.

2. Han, Y., Jana, S., & Wu, Y. (2021). **Optimal prediction of Markov chains with and without spectral gap**. NeurIPS 2021.

3. Jana, S., Polyanskiy, & Wu, Y. (2020). **Extrapolating the profile of a finite population**. In Conference on Learning Theory 2020 Jul 15 (pp. 2011-2033). PMLR.

Preprints ("∗": Authors list not in alphabetical order)

1. Xing, H.†, Jana, S.†, & Maleki, A.* (2025). **Minimax Analysis of Estimation Problems in Coherent Imaging**. arXiv preprint arXiv:2508.18503. † Equal contributions.

2. Fan, J., Jana, S., Kulkarni, S., & Yin, Q. (2025). **Factor Informed Double Deep Learning For Average Treatment Effect Estimation**. arXiv preprint arXiv:2508.17136.

3. Chen, X.†, Jana, S.†, Metzler, C.A., Maleki, A. & Jalali, S.* (2025). **Multilook Coherent Imaging: Theoretical Guarantees and Algorithms**. arXiv preprint arXiv:2505.23594. † Equal contributions.

4. Tang, S., Jana, S., & Fan, J. (2024). **Factor adjusted spectral clustering for mixture models**. arXiv preprint arXiv:2408.12564. Under major revision at the **Journal of American Statistical Association**.

Conferences, workshops and invited talks

1. Statistical Learning and Data Science: Inference and Intelligence New York, USA	November 2026
2. World Meeting of the International Society for Bayesian Analysis Nagoya, JPN	June 2026
3. IMSI Workshop on Reinforcement Learning from Offline Data and Human Feedback Chicago, USA	April 2026
4. Joint Statistical Meetings Nashville, TN, USA	August 2025
5. IMS New Researchers Conference Nashville, TN, USA	July-August 2025
6. International Webinar on Recent Trends in Statistical Theory and Applications Kerala, India	July 2025
7. International Indian Statistical Association Lincoln, NEB, USA	June 2025
8. International Indian Statistical Association Cochin, Kerala, India	December 2024
9. Joint Statistical Meetings Portland, OR, USA	August 2024
10. University of Notre Dame Statistics Department Seminar Notre Dame, IN, USA	February 2024

11. University of Wisconsin-Madison Statistics Department Seminar — February 2024
    Madison, WI, USA
12. University of Texas at Dallas Statistics Department Seminar — January 2024
    Richardson, TX, USA
13. Indian Statistical Institute ISRU Department Seminar — July 2023
    Kolkata, West Bengal, India
14. Conference on Learning Theory (COLT) — July 2023
    Bangalore, Karnataka, India
15. Neural Information Processing systems (NeurIPS) — December 2021
    Virtual
16. Conference on Learning Theory (COLT) — July 2020
    Graz, Austria

Teaching

University of Notre Dame

Introduction to probability (ACMS 30530)	Fall 2024, 2025, Spring 2026
Machine Learning Methods for High-dimensional Data (ACMS 70100)	Spring 2026
Modern Machine Learning Techniques with Application (ACMS 80870)	Spring 2025

Princeton University

Probability and stochastic systems (ORF 309/ENG 309/MAT 380)	Spring 2023
Statistical machine learning (ORF 570)	Fall 2023

Professional services

Paper reviews (29)
Annals of Statistics (3)
Journal of the American Statistical Association (2)
IEEE Transactions on Information Theory (5)
Journal of the Royal Statistical Society (2)
IEEE Wireless Communications Letters (1)
IEEE International Symposium on Information Theory (1)
Electronic Journal of Statistics (2)
Stat - an ISI Journal (1)
Algorithmic Learning Theory (7)
Bernoulli (1)
Statistica Sinica (1)
Journal of Statistical Planning and Inference (1)
Biometrics (1)
SIAM Journal on Mathematics of Data Science (1)

Invited organizational duties at conferences

CFE-CMStatistics Conference December 2025
Session organizer: Recent advances in Causal Inference

Joint Statistical Meetings August 2025
Session chair: New Advances in Optimization Algorithms for Causal Discovery

Joint Statistical Meetings August 2024
Session chair: New Advances in Nonparametric Hypothesis Testing - Part I
Session chair: New Developments in Non-Euclidean Statistics

IEEE Conference on Information Sciences and Systems March 2024
Session chair: Machine learning and statistical inference

Community Service: Teaching at Math Circle, Notre Dame Spring 2025
Promoting STEM education among school children Fall 2025

Yale S&DS M.A. admission committee 2021
Reviewer: one of the committee members handling over
150 applications and making admission recommendations

Yale S&DS graduate reading group 2020
Co-organizer Scheduled talks and lead discussion sessions

Yale Women in Data Science (WiDS) workshop 2020
Served as a mentor for Yale undergrad students participating
in the WiDS Datathon Challenge 2020

South Asian Graduate and Professional Association at Yale (SAGA) 2018 – 2021
Treasurer, core committee member and cultural committee head
Objective: organizing socio-cultural events to promote cultural exchanges at Yale

Other awards

INSPIRE Scholarship, Govt. of India 2012-2017

Indian National Mathematical Olympiad (INMO) merit certificate 2012
(For ranking among top 75 in INMO)