

NAVONIL DEB

Curriculum Vitae

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🎓 EDUCATION

- **PhD Candidate**, Department of Statistics and Data Science. *Fall 2021 - Spring 2026* (Expected)
Bowers College of Computing and Information Science, Cornell University.
Doctoral Advisor: Sumanta Basu.
Minor field: Operations Research and Information Engineering.
- **Master of Statistics**, Indian Statistical Institute Kolkata. *Fall 2019 - Spring 2021*
Specialization: Financial Statistics.
- **Bachelor of Statistics**, Indian Statistical Institute Kolkata. *Fall 2016 - Spring 2019*

❑ RESEARCH INTERESTS

My research focuses on developing statistically principled methodologies for analyzing large-scale and dependent data with complex structures arising across diverse domains. I aim to make such dependencies learnable through methodologies with theoretical guarantees and scalable computational algorithms. Broadly, my work lies at the intersection of **Time Series Analysis**, **High-Dimensional Statistics**, **Graphical Models** and **Causal Inference**.

█ SCHOLARLY MANUSCRIPTS

(Title is hyperlinked to the online pdf, * denotes equal contribution)

Preprints under Review

1. **Navonil Deb**, Raaz Dwivedi, Sumanta Basu (2025). [Counterfactual Forecasting for Panel Data](#). arXiv:2511.06189. *Under review at AISTATS*.
2. **Navonil Deb**, Amy Kuceyeski, and Sumanta Basu (2024). [Regularized Estimation of Sparse Spectral Precision Matrices](#). arXiv:2401.11128. *Submitted to Journal of Machine Learning Research*.

Working Papers

1. **Navonil Deb***, Younghoon Kim*, Sumanta Basu. Inference for High-dimensional Sparse Spectral Precision Matrices. (In preparation)

Interdisciplinary Research

1. Robin Radcliffe, Robin Desmond Gleed, Ava Cable, **Navonil Deb**. Predicting the Body Weight of Endangered Rhinoceroses in Namibia (In preparation).
Role: Designed data-driven statistical model to predict the body weight of endangered rhinoceroses from morphological measurements and demographic data, aiding rhino air-transport planning and veterinary health management.
2. Sayan Paul, Dhruba Nandi, **Navonil Deb**, Amy Kuceyeski, Sumanta Basu and Sreyoshi Das. Predicting Cognitive Scores and Demographics Using Resting State Functional MRI Features (In preparation).

Role: Designed penalized logistic regression models with feature engineering to uncover sex-independent and sex-specific neurobiological univariate correlates of cognitive performance in healthy individuals, providing insights into sex-differentiated patterns of cognitive impairment in neurological diseases.

Other Research Experience and Reports

1. **Navonil Deb***, Abhinandan Dalal* and Gopal Krishna Basak (2020). [Finding Optimal Cancer Treatment using Markov Decision Process to Improve Overall Health and Quality of Life](#). arXiv:2011.13960.
2. **Navonil Deb** and Arijit Chakrabarti. [Some Contributions to Inference and Model Selection in High Dimensional Statistics](#) (2021). Master's dissertation.

</> Software

cxreg: An R Package for Complex-Valued Lasso and Graphical Lasso, includes optimized Fortran subroutines for efficient large-scale computation.

Authors: Younghoon Kim, **Navonil Deb**, and Sumanta Basu

 [link](#)

👤 CONFERENCE PRESENTATIONS

Regularized Estimation of Sparse Spectral Precision Matrices

1. Spring Research Conference, Baruch College - CUNY, New York NY (Invited Talk). *May 2025*
2. CMStatistics, King's College, London (Invited virtual talk). *Dec 2024*
3. IMS Congress, Bochum, Germany. *August 2024*
4. JSM, Toronto, ON Canada. *Aug 2023*
5. NESS Symposium, Boston University, Boston MA (Invited Talk). *June 2023*
6. PhD students seminar, Department of Statistics and Data Science, Cornell University, Ithaca NY (Invited talk). *May 2023*
7. Conference on Advances in Time Series, UChicago Booth (Invited Poster). *May 2023*
8. IISA, Bangalore, India. *De 2022*
9. NBER-NSF Time Series Conference, Boston University, Boston MA (Selected poster). *Fall 2022*

Counterfactual Forecasting for Panel Data

1. JSM, Nashville, TN. *Aug 2025*
2. PhD students seminar, Department of Statistics and Data Science, Cornell University, Ithaca NY (Invited talk). *Dec 2024*

💻 Teaching Experience

Teaching Assistant for Undergraduate Courses at Cornell

1. Theory of Statistics (STSCI 4090). *Fall 2025*
2. Applied Time Series Analysis (STSCI 4550). *Spring 2025, Spring 2024, Spring 2023*
3. Probability Models and Inference (STSCI 3080). *Fall 2024*
4. Linear Models with Matrices (STSCI 4030). *Fall 2023*
5. Statistical Sampling (STSCI 3100). *Fall 2022*

Teaching Assistant for Graduate Courses at Cornell

1. Probability II for Statistics (STSCI 6750).

2. Statistical Computing I (STSCI 6520).

– Guest lecture on Complex-valued optimization in high dimension with real-complex ring isomorphism.

Fall 2024

💻 Research Internship Experience

1. Research Intern at **Self-Organizing Systems (SOS) Lab, Technische Universität (TU) Darmstadt, Germany** (virtual due to Covid 19). On [The Asymptotic Behavior of the Moments of the Causal Estimator for the Input in a Poisson Channel](#).

Supervisor: Heinz Köppl and Mark Sinzger.

May 2020 - Nov 2020

2. Short-term summer intern at **National Institute of Biomedical Genomics, India**. A Coalescent Process Framework for Reconstructing Historical Population Genomic Structure.

Supervisor: Analabha Basu.

May 2019 - July 2019

🏆 Awards

- 1.
2. Undergraduate and Masters studies supported by **Kishore Vaigyanik Protsahan Yojana (KVPY)** award by Department of Science & Technology (DST), Government of India.
3. Recipient of **Prize Money Award** for outstanding performance in four semesters during undergraduate and masters studies in Indian Statistical Institute.

💻 Technical Skills

Programming R, Python, Fortran, C, C++ (rudimentary).

Computing Platform BioHPC.

Software RStudio, Jupyter.

Applications LATEX, Git, Excel.

☰ Academic Services

1. Lab organizer of [Statistical Modeling of Complex Systems \(SMOCS\)](#) at Cornell. *Fall 2024*
2. Session Chair for “Recent Developments in Causal Inference”, JSM, Toronto, ON Canada. *Aug 2023*
3. Organizer of reading group on Causal ML Methods in Longitudinal Data at Cornell. *Spring 2023*
4. Journal reviewer for Computational Statistics, Sankhya A.