Imon Banerjee Ph.D.

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Education

Department of Industrial Engineering and Management Science, Northwestern University
Evanston, USA
IEMS Alumni Fellow
2023-

Department of Statistics, Purdue University
West Lafayette, USA
Ph.D. in Statistics
2018 - 2023
- Advisor: Prof. Vinayak Rao and Harsha Honnappa
- Research area: Controlled Markov Chains and Reinforcement Learning (*thesis*)

Department of Statistics, Indian Statistical Institute
Kolkata, India
BSc, MSc in Statistics
2013-2018
- Advisor: Prof. Swagatam Das

Publications and Preprints

1. **Imon Banerjee**, Sayak Chakraborty. CLT, Edgeworth Expansion, and Hall's Phenomenon for m-out-of-n Bootstrap Estimators of The Studentized Sample Median. *Submitted to COLT, 2025(preprint)* 2025

2. **Imon Banerjee**, Tzewai So, Diego Klabjan. Typical Behavior of Weak Mixing Recurrent controlled Markov chains. *Preprint on request* 2025

3. **Imon Banerjee**, Itai Gurvich, Goggin's corrected Kalman Filter: Guarantees and Filtering Regimes. *Submitted to IEEE Transactions on Information Theory (preprint)* 2025

4. **Imon Banerjee**, Harsha Honnappa, Vinayak Rao. Adaptive Estimation of the Transition Densities of Controlled Markov Chains. *Preprint on request* 2024

5. **Imon Banerjee**, Harsha Honnappa, Vinayak Rao. Offline Estimation of Controlled Markov Chains: Minimaxity and Sample Complexity *Operations Research, (doi: 10.1287/opre.2023.0046).* 2023

6. **Imon Banerjee**, Jean Honorio. Meta Sparse Principal Component Analysis *Major Review, TMLR, (preprint)* 2023

7. **Imon Banerjee**, Vinayak Rao, Harsha Honnappa. PAC-Bayes Bounds on Variational Tempered Posteriors for Markov Models. *Approximate Bayesian Inference, Entropy 2021, 23(3), 313.* 2021

8. **Imon Banerjee**, Sankha Subhra Mullick, Swagatam Das. On Convergence of the Class Membership Estimator in Fuzzy k-Nearest Neighbor Classifier. *IEEE Transactions on Fuzzy Systems, vol. 27, no. 6, pp. 1226-1236.* 2019

Ongoing

1. **Imon Banerjee**, Chang-Han Rhee. Adaptive Space Filling Design in Input Space. 2025

2. Jiaqi Li, **Imon Banerjee**, Sanjay Mehrotra. An Optimisation Framework for Offline Change Point Detection of Markov Sequences.

Internships

Argonne National Lab | Lemont, USA
2022.05 - 2022.08
- Develop a surrogate model to predict optimal placement of sensors to predict the origin of a contamination in a diffusion.

Transunion | Bombay, India
2017.05-2017.08
- Predicting Probability of 90-Days Past Due For 2 and 3 Years of Loan Tenure

Awards and Honors

- IEMS Alumni Fellowship   2023
- Ross-Lynn Research Fellowship   2022
- Inspire Fellowship   2013

Teaching

Northwestern University | Instructor
- IEMS 394: Industrial Engineering Client Project Challenge   Spring 2024
- IEMS 395/490: Applied Statistical Inference and Decision Making in Finance and Healthcare   Spring 2024
- IEMS 404: Predicitive Analysis-I   Fall 2024

Purdue University | Instructor
- STAT 503: Statistical Methods in Biology   Summer 2021
- STAT 225: Introduction to Probability   Spring 2019 — Summer 2020

Purdue University | TA
- STAT 503: Statistical Methods in Biology   Fall 2021 — Spring 2022
- STAT 225: Introduction to Probability   Fall 2020 — Spring 2021
- STAT 512: Applied Regression Analysis   Fall 2018
- STAT 301: Elementary Statistical Methods   Fall 2018

Academic Services

Reviewing for: *Entropy, ICML, AISTATS, ICLR, NEURIPS*

Undergraduate Advisor: *Kayla Terrelonge*

Graduate Advising: *Tziwei Su (With Diego Klabjan)*

Talks

- (**Contri.**) Joint Statistical Meeting   August 2024
- (**Invited**) ISMP   August 2024
- (**Invited**) Northwestern University   January 2024
- (**Contri.**) Informs Annual Conference   October 2023
- (**Invited**) Indian Statistical Institute   January 2023
- (**Contri.**) Student Paper Competition: IISA   December 2022
- (**Invited**) Informs Annual Conference   October 2022
- (**Contri.**) IISA virtual Mini Conference   January 2020
- (**Contri.**) NISS Graduate Student Conference   September 2020

Skills

Languages: Bengali, English, Hindi, Deutsch.
Programming: `Python`, `C++`, `MATLAB`.