Arnab Auddy

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Education

Columbia University — New York, USA
Ph.D. in Statistics, Advisor: Ming Yuan — Fall 2018–Current

Indian Statistical Institute — Kolkata, India
M.Stat., with Distinction — 2016–2018

- Specialization: Theoretical Statistics

Indian Statistical Institute — Kolkata, India
B.Stat., with Distinction — 2013–2016

Research Interests

My doctoral research is on tensors and the statistical and computational tradeoffs appearing in the application of tensor methods. I am broadly interested in spectral methods for high dimensional data analysis. I have also worked on nonparametric methods of independence testing.

Some Ongoing Projects

- Computationally Efficient Independent Component Analysis — 2021
  with Dr. Ming Yuan (Columbia University)
- Tensor Tucker Decomposition via Dictionary Learning — 2021
  with Dr. Ming Yuan (Columbia University)

Preprints and Publications

1. **Auddy, A.**, & Yuan, M. (2021). On Estimating Rank-one Spiked Tensors in the Presence of Heavy Tailed Errors. *arXiv preprint arXiv: 2107.09660*
2. **Auddy, A.**, Deb, N. & Nandy, S. (2021). Exact Detection Thresholds for Chatterjee's Correlation. *arXiv preprint arXiv: 2104.15140*
3. **Auddy, A.**, & Yuan, M. (2020). Perturbation Bounds for Orthogonally Decomposable Tensors and Their Applications in High Dimensional Data Analysis. *arXiv preprint arXiv:2007.09024*
4. KhudaBukhsh, W. R., **Auddy, A.**, Disser, Y., & Koeppl, H. (2018). Approximate lumpability for Markovian agent-based models using local symmetries. *Journal of Applied Probability*, 56 (3), 647-671.
5. Bhattacharyya, R., et al. (2021). Role of Multi-resolution Vulnerability Indices in COVID-19 spread: A Case Study in India. medRxiv (2021).

Industry Experience

- **Amazon** (Summer 2021): Research Scientist Intern. Worked on causal inference and empirical Bayes noise reduction with the Marketing Measurement team.

Talks

- 'Perturbation Bounds for Odeco Tensors', JSM 2020 (virtual)

Skills

- **Statistical softwares:** advanced R, intermediate Python

Teaching Assistantship

I have been the teaching assistant on the following courses. My responsibilities included helping students with coursework and software applications, as well as grading and holding recitation sessions.

- Multivariate Statistical Methods (Master's level) — Spring 2021
- Linear Regression Models (Master's level) — Fall 2020
- Generalized Linear Models (Master's level) — Spring 2020
- Bayesian Statistics (Master's level) — Fall 2019
- Nonparametric Statistics (Master's level) — Spring 2019
- Probability and Inference (Master's level) — Fall 2018

Scholarships and Awards

- Ph.D. scholarship: Dean's fellow at Columbia University — 2018–2020
- Prize money for good academic performance in M.Stat. — 2017
- KVPY fellowship (stream SA), from Department of Science and Technology, Government of India — 2013–2018
- Ranked in the top 1 percent among 40721 students in National Standard Exam in Physics (NSEP) — 2013

Other Details

- Participated in the SIAM Conference on Algebraic Geometry in Bern — July 2019
- Participated in workshop on 'Challenges in High-dimensional Data' at Columbia University — September 2018
- Runner up in the **CRISIL** Young Thought Leader Essay Competition — 2016
- Languages known: Fluent in English, Bengali and Hindi. Elementary knowledge of French.