

EDUCATION

Columbia University Ph.D. in Statistics, Advisor: Ming Yuan – GPA: 4.06	New York, USA Fall 2018–Present
Indian Statistical Institute M.Stat., with Distinction – Specialization: Theoretical Statistics	Kolkata, India 2016–2018
Indian Statistical Institute B.Stat., with Distinction	Kolkata, India 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 High Dimensional Independent Component Analysis 2022
with Ming Yuan (Columbia University)
- Tensor Tucker Decomposition via Dictionary Learning 2022
with Ming Yuan (Columbia University)
- Approximate Leave-one-out Cross Validation in High Dimensional Regression 2022
with Arian Maleki (Columbia University)
- Fast Approximations of Gromov-Wasserstein Distances for Spherical Data 2022
with Facundo Memoli (Ohio State University)

PREPRINTS AND PUBLICATIONS

1. **Auddy, A.**, & Yuan, M. (2021). On Estimating Rank-one Spiked Tensors in the Presence of Heavy Tailed Errors. *IEEE Transactions on Information Theory*, <https://ieeexplore.ieee.org/document/9832007>
2. **Auddy, A.**, Deb, N. & Nandy, S. (2021). Exact Detection Thresholds for Chatterjee's Correlation. *arXiv preprint arXiv: 2104.15140*
3. Bhattacharyya, R., et al. (2021). Role of Multi-resolution Vulnerability Indices in COVID-19 spread: A Case Study in India. *medRxiv* (2021), accepted at *BMJ Open*
4. **Auddy, A.**, & Yuan, M. (2020). Perturbation Bounds for Orthogonally Decomposable Tensors and Their Applications in High Dimensional Data Analysis. *arXiv preprint arXiv:2007.09024*
5. KhudaBukhsh, W. R., **Auddy, A.**, Disser, Y., & Koepl, H. (2018). Approximate lumpability for Markovian agent-based models using local symmetries. *Journal of Applied Probability*, 56 (3), 647-671.

INDUSTRY EXPERIENCE

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

INVITED TALKS

- Why and How to use Orthogonally Decomposable Tensors:
 - ENAR Spring Meeting, March 2022, Houston TX
 - September 2022, Statistical Learning Reading Group, Statistics department, Ohio State University
- High Dimensional Data Analysis using Orthogonally Decomposable Tensors, IMS Annual Meeting, June 2022, London UK
- Statistical and Computational Tradeoffs in Statistical Inference using Orthogonally Decomposable Tensors, INFORMS, October 2022, Indianapolis IN (upcoming)
- Computational and Statistical Limits in High Dimensional Independent Component Analysis, CMStatistics, December 2022, London UK

CONTRIBUTED TALKS

- Perturbation Bounds for Odeco Tensors, JSM 2020 (virtual)
- Why and how to use Orthogonally Decomposable Odeco Tensors, NISS 2022 (virtual)

WORKSHOPS

- Data Science at the Crossroads of Analysis, Topology and Geometry, AMS MRC, June 2022, Buffalo NY

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.

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| • Statistical Inference and Modeling (Masters level) | Fall 2021 |
| • Multivariate Statistical Methods (Masters level) | Spring 2021 |
| • Linear Regression Models (Masters level) | Fall 2020 |
| • Generalized Linear Models (Masters level) | Spring 2020 |
| • Bayesian Statistics (Masters level) | Fall 2019 |
| • Nonparametric Statistics (Masters level) | Spring 2019 |
| • Probability and Inference (Masters level) | Fall 2018 |

SCHOLARSHIPS AND AWARDS

- Ph.D. scholarship: Dean's fellow at Columbia University 2018–2023
- 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.