RISHABH DUDEJA

Website: http://www.columbia.edu/~rd2714/
Email: rd2714@columbia.edu

EDUCATION

Columbia University *September 2015 - Present*
PhD in Statistics *GPA: 4.16/4.00*
Advisors: Prof. Arian Maleki and Prof. Daniel Hsu

Indian Institute of Technology, Delhi *July 2011 - May 2015*
Bachelor of Technology, Electrical Engineering. GPA: 9.84/10.00
Thesis Advisor: Prof. Sumeet Agarwal.

RESEARCH INTERESTS

I am interested in understanding information theoretic and computational phenomena that arise in modern statistical inference problems using tools from information theory, applied probability and statistical physics.

PUBLICATIONS

1. Rishabh Dudeja and Daniel Hsu. Learning single-index models in Gaussian space. In *Thirty-First Annual Conference on Learning Theory*, 2018

2. Alexandr Andoni, Rishabh Dudeja, Daniel Hsu, and Kiran Vodrahalli. Attribute-efficient learning of monomials over highly-correlated variables. In *Thirtieth International Conference on Algorithmic Learning Theory*, 2019

3. Rishabh Dudeja, Milad Bakhshizadeh, Junjie Ma, and Arian Maleki. Analysis of spectral methods for phase retrieval with random orthogonal matrices. *IEEE Transactions on Information Theory*, 2020

   Conference Version: A short version of this work was awarded Oral Presentation in Signal Processing with Adaptive Sparse Structured Representations (SPARS) 2019 workshop.

4. Rishabh Dudeja, Junjie Ma, and Arian Maleki. Information theoretic limits for phase retrieval with subsampled Haar sensing matrices. *IEEE Transactions on Information Theory 2020 (Accepted), arXiv preprint arXiv:1910.11849*, 2019

5. Junjie Ma, Rishabh Dudeja, Ji Xu, Arian Maleki, and Xiaodong Wang. Spectral method for phase retrieval: an expectation propagation perspective. *IEEE Transactions on Information Theory 2020 (Accepted), arXiv preprint arXiv:1903.02505*, 2019

PREPRINTS

1. Rishabh Dudeja and Daniel Hsu. Statistical query lower bounds for tensor PCA. *arXiv preprint arXiv:2008.04101*, 2020

2. Rishabh Dudeja and Milad Bakhshizadeh. Universality of linearized message passing for phase retrieval with structured sensing matrices. *arXiv preprint arXiv:2008.10503*, 2020

INDUSTRY EXPERIENCE

IBM Research Delhi May-July 2014
Intern *Supervisor: Dr. Raghavendra Singh*

· Worked on predicting the missing functional labels in the white matter connectivity network of the Macaque Brain using labels of neighboring and spatially close-by nodes using a relaxation labelling algorithm.

ACADEMIC ACHIEVEMENTS

2019 Oral Presentation in Signal Processing with Adaptive Sparse Structured Representations (SPARS) 2019 workshop.

2018 Travel Award to attend COLT 2018.

2015 Awarded the Director's Silver Medal for being Ranked 1st in the EE Department among 2011 entry undergraduates.

2013 Received the Summer Undergraduate Research Award (SURA 2013) at IIT Delhi.

2011 All India Rank 129 in IITJEE 2011 among 450,000 students.

2011 Recipient of the KVPY-2011 fellowship awarded to 27 students pursuing Engineering all over India by the Department of Science and Technology.

2009 Recipient of the KVPY-2009 fellowship awarded to 215 students all over India pursuing Science by the Department of Science and Technology.

SUMMER SCHOOLS AND WORKSHOPS ATTENDED

2019 IPAM Workshop on Using Using Physical Insights for Machine Learning.

2018 Banff Workshop on Spin Glasses and Related Topics.

2018 Michigan Summer School on Random Matrix Theory.

2017 Park City Mathematics Institute (PCMI) Summer School on Random Matrix Theory.

2017 MSRI Workshop on Phenomena in High Dimensions.

TEACHING

Served as the Teaching Assistant for the following courses at Columbia University:

Fall 2015, Fall 2016: Linear Regression Models (Undergraduate/Masters Level).

Spring 2016: Introduction to Statistics with Calculus (Undergraduate Level).

Spring 2017, Spring 2018: Applied Categorical Data Analysis (Undergraduate Level).

Fall 2017: Probability and Statistical Inference (Masters Level).

Fall 2018: Statistical Computing and Introduction to Data Science (Undergraduate/Masters Level).

Spring 2019: Multivariate Statistical Inference (Undergraduate/Masters Level).

Fall 2019, Spring 2020: Stat. Inference & Time Series Modelling (Undergraduate/Masters Level).

SERVICE

1. Reviewer for NeurIPS (2018-2019), IEEE Signal Processing Letters (2019), COLT 2020, Information and Inference (2020) and Sub-reviewer for COLT 2019, ALT 2020.
2. Volunteer for COLT 2018 held at Columbia University, NY.