Subhabrata Majumdar

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Research interests

Theory: Statistical depth functions, depth-based robust inference and multivariate quantiles;

Applications: Statistical computing, machine learning algorithms, large-scale optimizations, high-dimensional models in human genomics, public health and statistical chemistry.

Education

PhD Statistics, University of Minnesota - Twin Cities, Fall 2012 - present (*expected Spring 2017*);
Advisor: Snigdhansu Chatterjee

M.S. Statistics, Indian Statistical Institute, 2012.
(Specialization: Actuarial science and Genetics)
Masters thesis: Adjusting for Treatment Effects in Studies of Quantitative Traits

B.S. Statistics, Indian Statistical Institute, 2010.

Publications

- Basak, S.C. and **Majumdar, S.** Prediction of Mutagenicity of Chemicals from Their Calculated Molecular Descriptors: A Case Study with Structurally Homogeneous versus Diverse Datasets. *Current Computer-Aided Drug Design*, **2015**, *11*, 117–123;
- With 9 authors. Predictive Modeling for Public Health: Preventing Childhood Lead Poisoning. *Proceedings of the 21st ACM SIGKDD conference on Knowledge Discovery and Data Mining, Sydney, Australia*, **2015**, 2039–2047;
- (Invited) Basak, S.C. and **Majumdar, S.** Editorial: The Importance of Rigorous Statistical Practice in the Current Landscape of QSAR Modelling. *Current Computer-Aided Drug Design*, **2015**, *11*, 2–4;
- Mukherjee, U., **Majumdar, S.** and Chatterjee, S. Fast and Robust Supervised Learning in High Dimensions Using the Geometry of the Data. In: *Advances in Data Mining: Applications and Theoretical Aspects*, ser. *Lecture Notes in Computer Science*, **2015**, *9165*, 109–123;
- **Majumdar, S.**, Basak, S.C. and Grunwald, G.D. Adapting Interrelated Two-Way Clustering Method for Quantitative Structure-Activity Relationship (QSAR) Modeling of Mutagenicity/ Non-Mutagenicity of a Diverse Set of Chemicals. *Current Computer-Aided Drug Design*, **2013**, *9*, 463–471.
- (Preprint) **Majumdar, S.** and Chatterjee, S. Robust estimation of principal components from depth-based multivariate rank covariance matrix, http://arxiv.org/abs/1502.07042;
- (In preparation) **Majumdar, S.** and Chatterjee, S. A model selection criterion for regression estimators based on data depth.

Presentations

Refereed poster:

- 9th International Triennial Calcutta Symposium. Kolkata, India, Dec 2015;
- 5th International Workshop on Climate Informatics, Boulder, CO, Sep 2015.

Contributed:

- ASA Joint Statistical Meetings: Seattle, WA: Aug 2015; Boston, MA: Aug 2014;
- 20th ACM SIGKDD conference on Knowledge Discovery and Data Mining, New York City, NY: Aug 2014.

Skills

R, Matlab, Stata, Mathematica, Python; C/C++, SQL; HTML, CSS, PHP; LaTeX, Microsoft office.

Major awards

- University of Minnesota Interdisciplinary Doctoral Fellowship, 2016-17;
- 5th International Workshop on Climate Informatics travel award, 2015;
- University of Minnesota School of Statistics travel award, 2014 – 2016;
- Debesh-Kamal Scholarship for Higher Studies Abroad, Ramakrishna Mission Institute of Culture, Kolkata, India, 2012;
- KVPY national fellowship, Department of Science and Technology, Govt. of India, 2008 – 2012;
- National scholar, National Council of Educational Research and Training, Govt. of India, 2005 – 2008;
- Best Project award in state-level conference of the Association of Surgeons in India, 2011.

Academic and professional experience

- **University of Minnesota Twin Cities**, Minneapolis, MN: Research Assistant, Jan 2015 – present;
- **Santander Consumer USA**, Dallas, TX: Data Science intern, May 2015 – Aug 2015;
- **Data Science for Social Good fellowship**, University of Chicago, Chicago, IL. June 2014 – Aug 2014;
- **National Marrow Donor Program**, Minneapolis, MN: Statistician Intern, Bioinformatics division, June 2013 – Aug 2013;
- **Educational Initiatives**, Bangalore, India: Summer Intern, June 2011 – July 2011;
- **Saha Institute of Nuclear Physics**, Kolkata, India: Undergraduate Research Associate in biophysical sciences, Jan 2008 – June 2010.

Teaching experience

Teaching Assistant at School of Statistics, Univ. of Minnesota, Fall 2012 – Fall 2014;

STAT 8051 - Advanced Regression Techniques; Fall 2014;
STAT 3022 - Data Analysis; Spring 2014;
STAT 5021 - Statistical Analysis, STAT 5031 - Statistical Methods for Quality Improvement; Fall 2013;
STAT 5303 - Designing Experiments, STAT 5401 - Applied Multivariate Methods; Spring 2013;
STAT 3011 - Introduction to Statistical Analysis; Fall 2012.

Professional activities

Journal Referring: Statistica Sinica, Current Computer-Aided Drug Design, Australasian Medical Journal;

Statistical Consulting;

Affiliations: Member of the Institute of Mathematical Statistics, Royal Statistical Society and Bernoulli Society.