

Sandipan Roy

CONTACT INFORMATION	Department of Mathematical Sciences University of Bath Claverton Down Bath BA2 7AY United Kingdom	<i>Voice:</i> (+44) 01225385421 <i>E-mail:</i> S.Roy@bath.ac.uk <i>website:</i> http://people.bath.ac.uk/sr2081/
RESEARCH INTERESTS	Networks, High dimensional inference, Graphical models, Machine learning, Nonparametric regression, Subsampling and parallel optimization method in “Big Data”.	
EDUCATION	University of Michigan , Michigan, Ann Arbor USA Ph.D. in Statistics, August 2015 <ul style="list-style-type: none">• Dissertation Topic: “Statistical Inference and Computational Methods for Large High-Dimensional Data with Network Structure”• Advisors: Prof. George Michailidis and Associate Prof. Yves Atchadé Indian Statistical Institute , Kolkata, West Bengal India M.Stat., Statistics, First Class with distinction, June, 2010 Presidency College , Kolkata, West Bengal India B.Sc., Statistics, First Class with distinction (Ranked 4th in the University), June, 2008	
HONORS AND AWARDS	Travel award winner from the Institute of Society of Nonparametric Statistics (ISNPS), June 2016 & 2018. Travel Scholarship winner for presenting in the workshop “Time Dynamic Change-point Models and its application” in Göttingen, Germany, October 2014. Student Paper (Paper Title :“ Estimating a Change-Point in High-Dimensional Markov Random Field Models ”) Award Winner, Joint Applied Statistics Symposium of ICSA and KISS, 2014 Rackham School of Graduate Studies Conference Travel Grant, University of Michigan 2014, 2013 & 2012 Departmental Fellowship, Department of Statistics, University of Michigan, Fall 2011 & Winter 2012 Different awards for academic performances in undergraduate in Presidency College, Kolkata, India. National Merit Scholarship by Government of India for performance in Higher Secondary Examination, 2008.	
ACADEMIC EXPERIENCE	University of Bath , Bath, United Kingdom Lecturer (US equivalent of Assistant Professor) University College London , London, United Kingdom Research Associate	August, 2018 - present August, 2015 - July 2018

-Worked on a EPSRC funded research project on modeling dynamic networks and performing statistical inference on parameters of the model.

-Mentored PhD students as they work on their thesis.

University of Michigan, Ann Arbor, Michigan USA

Graduate Student

August, 2010 - July, 2015

Includes PhD. research, PhD. level coursework and research projects.

Teaching

Graduate Courses

MA50259, Statistical Design of Investigations, Bath, Winter 2020

MA50183, Specialist Reading Course, “High Dimensional Inference and Graphical Models-Intersection of Statistics and Machine Learning”, Bath, Autumn 2019

MA20227 Tutorial, Statistics 2B, Bath, Winter 2019

MA30234, Statistics for Business II, Bath, Autumn 2018 & 2019

STATS 531, Time Series, Michigan, Winter 2013

STATS 607, Programming and Numerical Methods in Statistics, Michigan, Fall 2013 and Winter 2014

STATS 608, Optimization Methods in Statistics, Michigan, Fall 2013

STATS 608, Monte Carlo Methods in Statistics, Michigan, Winter 2014

Guest Lecturer for STATS 605, Advanced Topics in Modeling and Data Analysis, Fall 2014

Undergraduate Courses

BIOSTAT 449 (Introduction to Topics in Biostatistics), Winter 2011 & Winter 2013

STATS 250 (Introduction to Statistics and Data Analysis), Fall 2011, Winter 2012 & Fall 2012

Research Assistant

Worked on estimating dynamic high-dimensional network under the guidance of Professor George Michailidis and Associate Professor Yves Atchadé, Summer 2012

Worked on dynamic treatment regime under the guidance of Professor Susan Murphy, Fall 2010

SAMSI High Dimensional Graphical Models Working Group Member, September, 2013- April, 2014

PUBLICATIONS

Alex Gibberd and Sandipan Roy (2019). [Consistent Multiple Changepoint Estimation with Fused Gaussian Graphical Models](#). *Accepted in AISM*.

Sandipan Roy, Yves Atchadé and George Michailidis (2018). [Likelihood Inference for Large Scale](#)

Stochastic Blockmodels with Covariates based on a Divide-and-Conquer Parallelizable Algorithm with Communication. *Journal of Computational & Graphical Statistics*, Vol. 28, Issue 3, pp. 609-619.

Sandipan Roy, Yves Atchadé and George Michailidis (2016). [Change-Point Estimation in High-Dimensional Markov Random Field Models](#). *Journal of Royal Statistical Society: Series B*, Vol.79, Part 4, pp. 1187-1206.

Anurag Ghosh, Soumalya Mukhopadhyay, Sandipan Roy and Sourabh Bhattacharya (2014). [Bayesian inference in nonparametric dynamic state-space models](#). *Statistical Methodology*, Vol. 21, pages 35-48, November 2014.

Amita Pal, Smarajit Bose, Mandar Mitra and Sandipan Roy (2012). [ISIS and NISIS: New bilingual dual-channel speech corpora for robust speaker recognition](#). In *Proceedings of The 2012 International Conference On Image Processing, Computer Vision, & Pattern Recognition*, July 2012.

PREPRINTS

Ricardo Pio Monti, Alex Gibberd, Sandipan Roy, Matt Nunes, Romy Lorenz, Robert Leech, Takeshi Ogawa, Motoaki Kawanabe and Aapo Hyvarinen(2019). [Interpretable brain age prediction using linear latent variable models of functional connectivity](#). *arXiv preprint arXiv:1908.01555*

Alex Gibberd and Sandipan Roy (2017). [Multiple Change-point Estimation in High Dimensional Gaussian Graphical Models](#). *arXiv preprint arXiv:1712.05786*

Stéphane Chrétien, Alex Gibberd and Sandipan Roy (2018). [Hedging Parameter Selection for Basis Pursuit](#). *arXiv preprint arXiv:1805.01870*

IN PREPARATION

Sandipan Roy & Subhadeep Mukhopadhyay. On the Relation Between Network Homogeneity and Spectral Uni-modality.

Sandipan Roy & Abhishek Kaul. Change-point estimation in High Dimensional Ising Model without Grid Search.

GRANTS

- IMI Secondment Scheme, University of Bath, Project title- “Fuzzy Cognitive Mapping of Large-scale Brain Networks” £2500, 2019/20
- LMS, research in pairs (Scheme 4), Project title- “ Multiple Change-point Estimation in High Dimensional Gaussian Graphical Models”, £500, 2019/20

CONFERENCE PRESENTATIONS

- Interpretable brain age prediction using linear latent variable models of functional connectivity-*
- (invited talk) Modern Challenges in Spectral Analysis of Time-Series Workshop, University of Bristol, September, 2019.
 - (invited talk) 12th International Conference of the ERCIM WG on Computational and Methodological Statistics, Senate House, University of London, United Kingdom, December, 2019.

On the Relation Between Network Homogeneity and Spectral Uni-modality-

- (invited talk) Department of Statistics, University of Warwick, January, 2019.
- (invited talk) School of Mathematics, University of Bristol, February, 2019.
- (contributed talk) Joint Statistical Meetings, Denver, USA, August 2019.

Multiple Change-point Estimation in Gaussian Graphical Models-

- (invited talk) ISNPS, Salerno, Italy, June, 2018.

- (invited talk) Statistical Scalability, Issac Newton Institute, University of Cambridge, May, 2018.
- (invited talk) Department of Statistics, University of Leeds, March, 2018
- (invited talk) IISA Conference, Hyderabad, India, December, 2017.
- (invited talk) 10th International Conference of the ERCIM WG on Computational and Methodological Statistics, Senate House, University of London, United Kingdom, December, 2017.

Nonparametric Change-point Detection in Dynamic Networks-

- (invited talk) ISNPS, Avignon, France, June, 2016.
- (invited talk) Department of Statistical Science, University College London, October, 2016.

Likelihood Inference for Large Scale Stochastic Blockmodels with Covariates based on a Divide-and-Conquer Parallelizable Algorithm with Communication-

- (invited talk) 9th International Conference of the ERCIM WG on Computational and Methodological Statistics, Seville, Spain, December, 2016.

Change-point Estimation in High dimensional Markov Random Fields-

- (contributed poster) Theory of Big Data Workshop, London, January, 2016.
- (invited talk) IISA Conference, Pune, India, December, 2015.
- (invited talk) Applied Statistics Unit Seminar, Indian Statistical Institute, Kolkata, India, July, 2015.
- (invited talk) Department of Statistics seminar, University of Michigan, December, 2014.
- (invited talk) Invited Guest lecture in STATS 605 (Advanced topics in Statistical Modeling and Data Analysis), October, 2014.
- (contributed poster) Time Dynamic Change-point Models and its applications, University of Göttingen, Germany, October, 2014.
- (contributed talk) Joint Statistical Meetings, Boston, USA, August 2014.
- (student paper award talk) ICSA-KISS Joint Applied Statistics Symposium, Portland, June 2014.
- (contributed poster) 7th Midwest Statistics Research Colloquium, University of Chicago, USA, March, 2014.
- (contributed talk) Michigan Student Symposium for Interdisciplinary Statistical Sciences, Ann Arbor, USA, March, 2014.

Estimation of Time Varying Networks Using Latent Space Approach-

- (contributed poster) SAMSI LDHD Workshop, North Carolina, USA, September, 2013.
- (contributed talk) Joint Statistical Meetings, Montreal, Canada, August, 2013.
- (contributed talk) Eighth International Triennial Calcutta Symposium on Probability and Statistics, Kolkata, India, December 2012.

STUDENT
SUPERVISION

PhD Students

Jordan Taylor (PhD, University of Bath, 2019-), [primary supervisor]
 Tich Chinzowu (PhD, University of Bath, 2019-), [secondary supervisor]
 Alex Gibberd (PhD, University College London, 2015-2017), [secondary supervisor]

Master's Students

Joe Mobbs (2019), "Exploring the Predictive Power of Transactional Data in Retail Credit Scoring", University of Bath

Hui Ching Yip (2019), “Understanding Node Risk in Epidemics with Bayesian Networks”, University of Bath

Undergraduate Students

James Price (2018-19), “Estimation and Inference on Undirected Graphical Models”, University of Bath

Nadia Miah (2019-), “Analysing Statements from UN General Assemblies Using Statistics and Machine Learning Techniques”, University of Bath

Angelique Avery (2019-), “Spectral Clustering and its Applications”, University of Bath

SERVICES AND AFFILIATION

Manuscript Review

Annals of Statistics

Journal of American Statistical Association

Electronic Journal of Statistics

Journal of Educational and Behavioral Statistics

Journal of Computational and Graphical Statistics

Statistics and Probability Letters

Statistics and Computing

Journal of Multivariate Analysis

Journal of Statistical Planning and Inference

PLOS One

NIPS 2016, 2017, 2018 & 2019 Conference Proceedings

ICLR 2018 Conference Proceedings

ICML 2018 & 2019

Membership

American Statistical Association (ASA)

Institute of Mathematical Statistics (IMS)

Indian International Statistical Association (IISA)

Society for Industrial and Applied Mathematics (SIAM)

UCL Big Data Institute (BDI)

Alan Turing Institute (ATI)

COMPUTER SKILLS

- Statistical Softwares: WinBUGS, SPSS, STATISTICA
- Programming Languages: R, MATLAB, PYTHON, C
- Operating Systems: Windows, Unix/Linux, Macintosh.