Saptarshi Chakraborty, Ph.D.

CONTACT INFORMATION

Department of Epidemiology & Biostatistics
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RESEARCH INTERESTS

Statistical Computing, Bayesian modeling, Markov chain Monte Carlo, modeling in cancer genomics and computational biology, data science, machine learning, big and high-dimensional data, dimension reduction, statistical analyses in biomedical research

EDUCATION

University of Florida, Gainesville, FL, USA

Ph.D., Statistics, August 2013 - August 2018

- Thesis Topic: *Theory and Applications of Markov Chain Monte Carlo Techniques*
- Advisors: Kshitij Khare, Ph.D. and Samuel W.K. Wong, Ph.D.

Indian Statistical Institute, Kolkata, India

M.S., Statistics, July 2011 - June 2013

- Specialization: Applied Statistics and Data Analysis

Presidency College, Kolkata, India

B.S. (Hons.), July 2008 - June 2011

- Major: Statistics; Electives: Mathematics, Economics

CURRENT POSITION

Research Fellow September 2018 - Present
Department of Epidemiology and Biostatistics, Memorial Sloan Kettering Cancer Center, New York

- Project Description: Statistical modeling of large and high-dimensional cancer genomic data.
- Mentors: Colin B. Begg, Ph.D., and Ronglai Shen, Ph.D.

PREVIOUS PROFESSIONAL POSITIONS

Research Assistant August 2017 – August 2018
Department of Statistics,
University of Florida
Supervisor: Michael J. Daniels, Sc.D.

Course Instructor January 2017 – May 2017
STA 4321 & STA 5325 :
Introduction to Probability & Fundamentals of Probability
Department of Statistics
University of Florida

Teaching Assistant September 2014 – May 2015
STA 2023 : Introduction to Statistics
Instructors: Megan Mocko (Fall 2014), Maria Ripol (Spring 2015)
Department of Statistics
University of Florida

REFERRED JOURNAL PUBLICATIONS

1. **Chakraborty, S.** and Khare, K. (2017). Convergence properties of Gibbs samplers for Bayesian probit regression with proper priors, *Electronic Journal of Statistics* 11, 177-210. Link.

2. Maji, A., **Chakraborty, S.**, and Basu, A., (2017). Statistical Inference based on the Logarithmic Power Divergence. *Society For Application Of Statistics And Allied Sciences*, 2, 39–51. Link.

3. **Chakraborty, S.** and Khare, K. (2019). Consistent estimation of the spectrum of trace class data augmentation algorithms. *Bernoulli. 25(4B), 2019, 3832–3863.* Link.

4. **Chakraborty, S.**, Arora A., Begg, C. B. and Shen, R. (2019). Using Somatic Variant Richness to Mine Signals from Rare Variants in the Cancer Genome. *To appear in Nature Communications.*

5. **Chakraborty, S.** and Wong, S. W. (2019). `BAMBI:` An R package for Fitting Bivariate Angular Mixture Models. To appear in *Journal of Statistical Software.*

6. Vaziri, S., Wilson, J., Abbatematteo, J., Kubilis, P., **Chakraborty, S.**, Kshitij, K., and Hoh, D. J. (2017). Predictive performance of the American College of Surgeons universal risk calculator in neurosurgical patients. *Journal of Neurosurgery*, 1-6.

7. Chatterjee, N., Nair, P.K.R., **Chakraborty, S.**, and Nair, V.D. (2018). Changes in soil carbon stocks across the Forest-Agroforest-Agriculture/Pasture continuum in various agroecological regions: A meta-analysis. *Agriculture, Ecosystems and Environment*, 266, 55-67.

8. Vaziri, S., Awan, O., Porche, K., Scott, K., Sacks, P., Dru, A. B., **Chakraborty, S.**, Khare, K., Hoh, B., and Rahman, M. (2019). Reimbursement Patterns for Neurosurgery: Analysis of the NERVES Survey Results from 2011-2016. *Clinical Neurology and Neurosurgery*, p.105406.

9. Barnard, A. M., Wilcox, R., Forbes, S.C., Daniels, M. J., **Chakraborty, S.**, Lott, D., J., Senesac, C. R., Arora, H., Sweeny, L., Walter, G. H., and Vandenborne, K. H. E. (2019). MR biomarkers and predictive relationships to clinical function over 48 months in Duchenne muscular dystrophy. To appear *in Neurology.*

10. Barnard, A. M., Wilcox, R., Forbes, S.C., Daniels, M. J., **Chakraborty, S.**, Lott, D., J., Senesac, C. R., Arora, H., Sweeny, L., Walter, G. H., and Vandenborne, K. H. E. (2019). MR biomarkers and predictive relationships to clinical function over 48 months in Duchenne muscular dystrophy. To appear *in Neurology.*

Submitted Journal Publications

1. **Chakraborty, S.** and Su, Z. (2019+). A comprehensive Bayesian framework for envelope models. Under review.

2. **Chakraborty, S.** and Wong, S. W. (2019+). Bayesian analysis of coupled cellular and nuclear trajectories for cell migration. Under review.

3. **Chakraborty, S.**, Begg, C. B., and Shen, R. (2019+). Using the "Hidden" Genome to Improve Classification of Cancer Types. Under review.

4. **Chakraborty, S.**, Bhattacharya, B., and Khare, K. (2019+). Estimating accuracy of MCMC standard error: a central limit theorem for batch means estimator. Submitted.

5. Lee, M., **Chakraborty, S.**, and Su, Z. (2019+). A Bayesian approach to envelope quantile regression. Submitted.

6. **Chakraborty, S.** and Wong, S. W. On the circular correlation coefficients for bivariate von Mises distributions on a torus. Submitted.

7. Cassidy, D. J., McKinley, S. K., **Chakraborty, S.**, Mansur A., Hamdi I., Mullen, J, Petrusa, E., Phitayakorn R., Gee, D. (2019+). Feasibility and Benefits of a Peer-Led ABSITE Review Course. Submitted.

Statistical Software

1. BAMBI: An R package for Bivariate Angular Mixture Models.
2. variantprobs: An R package for estimating probabilities and expected numbers of mutations in the tumor genome.

Awards

- College of Liberal Arts and Sciences Graduate Travel Award, University of Florida, December 2017
- College of Liberal Arts and Sciences Graduate Travel Award, University of Florida, February 2017
- Graduate School Fellowship, University of Florida, August 2013 - August 2017.
- INSPIRE scholarship, Ministry of Science & Technology, Govt. of India, Jun 2008 - Jun 2011.

Oral and Poster Presentations (Presenter's name in bold)

- **Chakraborty, S.**, Khare, K. Consistent estimation of the spectrum of trace class data augmentation algorithms. Contributed oral presentation given at the Joint Statistical Meetings, Baltimore, MD, 2017.
- **Chakraborty, S.**, Khare, K. Convergence properties of Gibbs samplers for Bayesian probit regression with proper priors. Invited oral Presentation given at the Conference of Indian Statistical Association, Hydrabad, India, 2017.
- **Chakraborty, S.**, Wong, S. W. BAMBI: An R package for bivariate angular mixture models. Contributed oral presentation given at ENAR, Washington, D.C., 2017.
- **Chakraborty, S.**, Khare, K. Consistent estimation of the spectrum of trace class data augmentation algorithms. Contributed oral presentation given at ENAR, Atlanta, GA, 2018.
- Chakraborty, S., **Su, Z.** A Comprehensive Bayesian Framework for Envelope Models. Invited oral presentation given at EcoSta conference, Taichung, Taiwan, 2019.
- Awan O, Scott K, **Vaziri S**, Chakraborty S, Kshitij K, Rahman M. Reimbursement Patterns for Neurosurgery: Analysis of the NERVES Survey Results from 2011-2016. Poster presented at the University of Florida Research Symposium, 2019.
- **Vaziri S**, Scott K, Awan O, Chakraborty S, Kshitij K, Kubilis P, Hoh D. Risk Calculators in Neurosurgery: Identifying the High Cost Patient. Oral Presentation given at the University of Florida Neurosurgical Research Symposium in Gainesville, FL, 2019.
- **Vaziri S**, Henson C, Scott K, Awan O, Chakraborty S, Kshitij K, Kubilis P, Hoh D. Predictors of Cost in Patients Undergoing Lumbar Spine Surgery. Oral Presentation given at the CNS Spine Section National Meeting in Miami, FL, 2019.
- **Vaziri S**, Awan O, Scott K, Chakraborty S, Kshitij K, Rahman M. Reimbursement Patterns for Neurosurgery: Analysis of the NERVES Survey Results from 2011-2016. Oral Presentation given at the AANS in San Diego, CA 2019.
- **Lee M**, Chakraborty S, Su Z. A Bayesian quantile envelope regression model. Poster Presentation given at the Joint Statistical Meetings, Denver, CO, 2019.
- Chakraborty S, **Shen R**, Begg C. Estimating Somatic Variant Richness in the Cancer Genome. Oral Presentation given at the Joint Statistical Meetings, Denver, CO, 2019.

Service

Organizer of Student Seminar Series, Department of Statistics, University of Florida, Fall 2017 - Spring 2018