Saptarshi Chakraborty

Curriculum Vitae Updated: July 2024

CONTACT INFORMATION

Department of Biostatistics School of Public Health and Health Professions (SPHHP) University at Buffalo, State University of New York (SUNY) 718 Kimball Tower Buffalo, NY 14214, USA

Email: <u>chakrab2@buffalo.edu</u>; <u>chakra.saptarshi@gmail.com</u> Homepage: <u>www.saptarshichakraborty.net</u> ORCID: <u>0000-0002-3121-9174</u> Google Scholar: <u>Saptarshi Chakraborty</u>

EDUCATION AND TRAINING

- 2018 2020 **Postdoctoral Research in Statistical Genomics**, Memorial Sloan Kettering Cancer Center, New York, NY, USA. **Research topic:** Statistical Modeling of High-dimensional Cancer Genomic Data.
- 2013 2018 **Ph.D. in Statistics**, University of Florida, Gainesville, Florida, USA. **Thesis Title:** Theory and Applications of Markov Chain Monte Carlo Techniques.
- 2011 2013 **M.S. in Statistics**, Indian Statistical Institute, Kolkata, India. **Specialization:** Applied Statistics and Data Analysis. *Graduated in the First Division with Distinction.*
- 2008 2011 **B.Sc. (Hons.) in Statistics**, Presidency College, Kolkata, India. Graduated in the First Class (First Division) and Ranked Third in the Merit List Published by the University of Calcutta.

EMPLOYMENT

2020 – Present Assistant Professor of Biostatistics (Tenure Track), School of Public Health and Health Professions (SPHHP), University at Buffalo, State University of New York (SUNY). Buffalo, NY, USA.

PROFESSIONAL APPOINTMENTS

- 2022 2024 **Director, BERD Statistical Consulting Lab**, Clinical and Translational Science Institute (CTSI) Biostatistics Epidemiology & Research Design (BERD) Core, University at Buffalo SUNY.
- 2022 Present **Affiliated Faculty**, Institute for Artificial Intelligence and Data Science, University at Buffalo SUNY.
- 2020 Present Member, CTSI BERD Core, CTSI, University at Buffalo SUNY

RESEARCH INTERESTS

Computational Statistics, Bayesian modeling and computations, multilevel models, Monte Carlo methods, statistical modeling in cancer genomics and computational biology, statistical methods for medical product safety/pharmacovigilance, statistical machine learning, big and high-dimensional data, dimension reduction, statistical software development, statistical modeling in biomedical research.

PUBLICATIONS

Notes:

- a. The horizontal lines separate publications before and after joining the University at Buffalo SUNY.
- b. Asterisk (*) indicates that the lead author is a PhD advisee under the supervision of Dr. Chakraborty.

Refereed Journal Articles

Theory and Methodology Articles

- Chakraborty, S., Guan, Z., Kostrzewa, C.E., Shen, R., and Begg, C.B. (2024). Identifying Somatic Fingerprints of Cancers Defined by Germline and Environmental Risk Factors. Genet Epidemiol. 2024 Apr 30. doi: 10.1002/gepi.22565. EPUB ahead of print. PMID: 38686586.
- 2. **Chakraborty, S.**, Guan, Z., Begg, C.B., and Shen, R. (2024). 'Topical hidden genome': a Bayesian multilevel context and topic model for genome-driven cancer-type characterization problems. *Biometrics*, 80(2), ujae030.
- 3. **Chakraborty, S.** and Su, Z. (2023). A comprehensive Bayesian framework for envelope models. *Journal of the American Statistical Association, Theory & Methods*. 1-11.
- 4. Shen Y, Park Y, **Chakraborty S**, Zhang C. (2023). Bayesian simultaneous partial envelope model with application to an imaging genetics analysis. *New England Journal*

of Statistics in Data Science. 1(2):237--269 (2023).

- 5. Mukherjee S, Khare K, and **Chakraborty S**. (2023). Convergence properties of data augmentation algorithms for high-dimensional robit regression. *Electronic Journal of Statistics*. 17(1):19-69(2023).
- 6. **Chakraborty, S.**, Markatou, M., and Ball, R. (2023). Likelihood Ratio Test Based Drug Safety Assessment using R package pvLRT. *R Journal*, 15(1).
- Chakraborty, S., Liu, A., Ball, R., and Markatou, M. (2022). On the Use of the Likelihood Ratio Test Methodology in Pharmacovigilance. *Statistics in Medicine*. 1(27), pp.5395-5420.
- 8. Lee, M., **Chakraborty, S.**, and Su, Z. (2022). A Bayesian approach to envelope quantile regression. *Statistica Sinica*. 32, 1-19
- 9. **Chakraborty, S.** and Wong, S. W. (2022). On the circular correlation coefficients for bivariate von Mises distributions on a torus. *Stat Papers*.
- 10. **Chakraborty, S.**, Bhattacharya, B., and Khare, K. (2022). Estimating accuracy of the MCMC variance estimator: asymptotic normality for batch means estimators. *Statistics and Probability Letters*, 109337.
- Chakraborty, S., Ecker, B. L., Seier, K., Aveson, V. G., Balachandran, V. P., Drebin, J. A., D'Angelica, M. I., Kingham, T. P., Sigel, C. S., Soares, K. C., Vakiani, E., Wei, C., Chandwani, R., Gonen, M., Shen, R., Jarnagin, W. R. (2021). Genome-derived Classification Signature for Ampullary Adenocarcinoma to Improve Clinical Cancer Care. *Clinical Cancer Research*. (27) (21) 5891-5899.
- 12. Chakraborty, S., Martin, A., Guan, Z., Begg, C. B., and Shen, R. (2021). Mining mutation contexts across the cancer genome to map tumor site of origin. *Nature Communications*. **12**, 3051.
- 13. **Chakraborty, S.** and Wong, S. W. (2021). BAMBI: An R package for Fitting Bivariate Angular Mixture Models. *Journal of Statistical Software*, 99(11), 1–69.
- 14. **Chakraborty, S.** Tian, L, Tseng, Y, and Wong, S. W. (2021). Bayesian analysis of coupled cellular and nuclear trajectories for cell migration. *Biometrics* 1-12.
- 15. **Chakraborty, S.**, Begg, C. B., and Shen, R. (2020). Using the "Hidden" Genome to Improve Classification of Cancer Types. *Biometrics*. 2020;1–11.

- 16. **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. *Nature Communications* **10**, 5506.
- 17. **Chakraborty, S.** and Khare, K. (2019). Consistent estimation of the spectrum of trace class data augmentation algorithms. *Bernoulli*. 25(4B), 2019, 3832–3863.
- 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.
- 19. 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 (1), 39–51.

Collaborative Applied Scientific Articles

- 20. Penman, S.L., Roeder, N.M., Wang, J., Richardson, B.J., Freeman-Striegel, L., Krayevsky, A., Eiden, R.D., **Chakraborty, S**., and Thanos, P.K., (2024). Vaporized Δ9tetrahydrocannabinol exposure in utero has negative effects on attention in a dose-and sex-dependent manner. *Pharmacology Biochemistry and Behavior*, 173808.
- Penman, S.L., Roeder, N.M., Wang, J., Richardson, B.J., Pareek, O., Freeman-Striegel, L., Mohr, P., Khan, A., Eiden, R.D., **Chakraborty, S.**, and Thanos, P.K. (2024).
 Vaporized nicotine in utero results in reduced birthweight, increased locomotion, and decreased voluntary exercise, dependent on sex and diet in offspring. *Psychopharmacology*, 1-26.
- 22. Rosi-Schumacher, M., DiNardo, L. A., Reese, A. D., Gupta, S., Nagy, R. E., Chakraborty, S., and Carr, M. M. (2024). Comparison of Surgical Techniques for the Treatment of Congenital Nasal Pyriform Aperture Stenosis: A Systematic Review. *Annals of Otology, Rhinology & Laryngology*, 00034894241242179.
- 23. Roeder, N M; Penman, S L; Richardson, B J; Wang, J; Freeman-Striegel, L; Khan, A; Pareek, O; Weiss, M; Mohr, P; Eiden, R D; Chakraborty, S; Thanos, P K. (2024). Vaporized ∆9-THC in utero results in reduced birthweight, increased locomotion, and altered wake-cycle activity dependent on dose, sex, and diet in the offspring. *Life Sciences*: 122447. doi: 10.1109/TUFFC.2023.3283139.
- 24. Huang, C; Cheng, Y; Zheng, W; Bing, R; Zhang, H; Komornichi, I; Harris, L; Arany, P; Chakraborty, S; Zhou, Q; Xu, W; Xia, J. (2023). Dual-scan photoacoustic tomography for the imaging of vascular structure on foot. *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control*, 70(12), 1703-1713..

- Atanasova, K, Chakraborty, S (co-first author), Ratnayake, R, Khare, K, Luesch, H. (2022). An epigenetic small molecule screen to target abnormal nuclear morphology in human cells. To appear in Molecular Biology of the Cell. *Molecular Biology of the Cell*, 33(6), ar45.
- 26. Batra, A, Barnard, A, Lott, D J, Willcocks, R, Forbes, S C, Chakraborty, S, Daniels, M, Arbogast, J, Triplett, W, Henricson, E, Dayan, J G, Schmalfuss, C, Sweeney, L, Byrne, B J, McDonald, C, Vandenborne, K, Walter, G A. (2022). Longitudinal changes in cardiac function in Duchenne muscular dystrophy population as measured by magnetic resonance imaging. *BMC Cardiovascular Disorders*, 22(1), 260.
- Ambruster, C.E., Brauer, A.L., Humby, M.S., Shao, J., Chakraborty, S. (2021). Prospective assessment of catheter-associated bacteriuria in nursing home residents: clinical presentation, epidemiology, and colonization dynamics. *JCI Insight*. Oct 8;6(19):e144775.
- Cassidy, D. J., Chakraborty, S., Panda, N., McKinley, S. K., Mansur, A., Hamdi I., Mullen, J., Petrusa, E., Phitayakorn, R., and Gee, D. (2020). The Surgical Knowledge "Growth Curve": Predicting ABSITE Scores and Identifying "At-Risk" Residents. *Journal* of Surgical Education.
- 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. (2020). MR biomarkers predict clinical function in Duchenne muscular dystrophy. *Neurology*, 94(9), e897-e909.
- Rooney, W. D., Berlow, Y. A., Triplett, W. T., Forbes, S. C., Willcocks, R. J., Wang, D, Arora, H, Senesac, C, Lott, D. J., Finkel, R., Russman, B. S., Finanger, E. L., **Chakraborty, S.**, O'Brien, E, Moloney, B, Barnard, A, Sweeney, H. L., Daniels, M. J., Walter, G. A., and Vandenborne, K. (2020). Modeling disease trajectory in Duchenne muscular dystrophy. *Neurology*, 94(15), e1622-e1633.
- 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.
- 32. 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.

 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.

Book Chapter

1. **Chakraborty, S.** Genome-driven cancer site characterization: an overview of the hidden genome model. (2024). *Modern inference based on health-related markers Biomarkers and Statistical Decision Making.* Elsevier Inc. Editors: Vexler, A.; Yu, J.

Submitted/In-revision Scholarly Articles

- 1. Hua, S.*, **Chakraborty, S.** Inferring cancer-type-specific latent mutation signatures using a Bayesian tree-based supervised topic model.
- 2. Huang, X.*, **Chakraborty, S.** A Bayesian framework for medical product safety assessment using correlated spontaneous reporting system data.
- 3. Tan, Y.*, **Chakraborty, S.**, Markatou, M. On the use of non-parametric empirical Bayesian approaches in Pharmacovigilance.
- 4. Wang, S., **Chakraborty, S.**, Qin, Q., Bai, R. Neural-*g*: A Deep Learning Framework for Mixing Density Estimation.
- 5. **Chakraborty, S**., Khare, K, Michailidis, G. A generalized Bayesian approach for highdimensional robust regression with serially correlated errors and predictors.

Open-Source Statistical Software

- 1. BAMBI: An R package for Bivariate Angular Mixture Models. *Downloaded from the Comprehensive R Archive Network (CRAN) over 50,000 times.* Link.
- 2. variantprobs: An R package for estimating probabilities and expected numbers of mutations in the tumor genome. <u>Link</u>.
- 3. hidgenclassifier: An R package implementing Key functions for Bayesian hidden genome classifiers. Includes functions for preprocessing genomic data, fitting and predicting from hidden genome classifiers. Link.
- pvLRT: An R package for likelihood ratio test-based methods for pharmacovigilance. Link.
- 5. Benvlp: An R package for comprehensive Bayesian envelope modeling.
- 6. bayeshidgenclassifier: An R package for full Bayesian topic modeling for latent mutational signature discovery driven by cancer risk factors
- 7. pvbayes: An R package for various Bayesian methods for pharmacovigilance.

GRANTS

Funded Research

1. R01EB029596: Multiparametric photoacoustic and ultrasonic imaging of the breast in cranial-caudal view (PI: Xia, J.).

Source: National Institute of Biomedical Imaging and Bioengineering.Role: Co-investigator.Period: April 2020 - December 2023.Total Award Amount: \$1,576,743Yearly Effort: 5-10%.

 R01EB028978: Development of photoacoustic tomography for non-invasive, label-free imaging of tissue perfusion in chronic wounds (PI: Xia, J.).
 Source: National Institute of Biomedical Imaging and Bioengineering

Role: Co-investigator. Total Award Amount: \$1,643,693` Period: May 2021 - February 2025. Yearly Effort: 5-10%.

3. Metagenomic sequencing for improved diagnosis of catheter-associated urinary tract infection (PI: Armbruster, C.).

Source: Board of Regents of the University. System of Georgia on behalf of Augusta University; National Institute of Health.

Role: Co-investigator Total award amount: \$100,000 Period: July 2023-June 2024. Yearly Effort: 1.6%.

4. 5UL1T1001412-06: University at Buffalo Clinical and Translational Science Institute (PD/PI: Murphy, T.F.).

Source: National Institute of Health: National Center for Advancing Translational Sciences (NIH/NCATS).

Role: Co-investigator Total Award Amount: \$19,231,451 Period: Dec 2019 - Dec 2024 Yearly Effort: 5%.

5. FP00009056: mHealth Technologies for Assessing Blood Perfusion of Chronic Wounds (PI: Xu, W.).

Source: National Institute of Health Role: Co-investigator Total Award Amount: \$3,041,990

Period: November 2023 - October 2027 **Yearly Effort:** 8.3%.

- R01CA251339: Harnessing rare variants for tumor classification (PI: Shen, R.).
 Source: National Cancer Institute (HHS NIH).
 Role: Consultant
 Period: April 2021 March 2024
 Yearly Effort: \$10,000/year.
- 7. Evaluating LRT for Post-Market Surveillance of Adverse Events (PI: Markatou, M.).
 Source: US Food and Drug Administration (FDA)
 Role: Co-investigator
 Period: October 2020 September 2022
 Total Award Amount: \$527,735.00
 Yearly Effort: 5-20%.

Submitted/Under Review PI/Co-PI Grants

1. Inferring Genome-Wide Somatic Patterns Linked with Cancer Risk Factors via Bayesian Topic Modeling.

Source: National Institute of Health/National Cancer InstituteRole: PlPeriod: April 2025 – December 2030Total Req. Amount: \$2,086,063Yearly Effort: 25%.

- 2. Collaborative Research: FRGMS: Bayes estimation and uncertainty quantification for robust statistical learning.
 - a. **Source:** National Science Foundation
 - b. Role: Co-Pl Period:
 - c. Total Req. Amount: Yearly Effort: 15%.

RESEARCH PRESENTATIONS

Invited and Selected Presentations at International-Level Conferences

- Chakraborty, S., Guan Z., Begg, C.B., Shen, R. Topical Hidden Genome: Discovering Latent Cancer Mutational Topics Using a Bayesian Multilevel Context-Learning Approach. Presentation given at the Selected and Invited Topic Contributed Session *Recent Advances in Inferential Statistical Methods in Genomics* at Joint Statistical Meetings 2024. Portland, Maryland, USA. August 2024.
- Chakraborty S., Liu A., Ball R., Markatou M. On the Use of the Likelihood Ratio Test Methodology in Pharmacovigilance. Invited presentation given in the session Navigating the Intersection: Regulatory Perspectives and Statistical Innovations for Real-World Data at ENAR 2024 Spring Meeting. Baltimore, Maryland, USA. March 2024.
- Chakraborty, S., Guan Z., Begg, C.B., Shen, R. Using the "Hidden Genome" to Mine Mutation Contexts Across the Cancer Genome to Map Tumor Site of Origin. Invited presentation in the session *Recent Advances in Inferential Statistical Methods in Genomics* at ENAR 2023 Spring Meeting. Nashville, Tennessee. March 2023.
- 4. Mukherjee, S., Khare, K., **Chakraborty, S.** Convergence properties of data augmentation algorithms for high-dimensional robit regression. Invited presentation given (virtually) in the Advances in Markov Chain Monte Carlo (EO721) session at CMStatistics 2022 Conference. London, United Kingdom, December 2022.
- 5. **Chakraborty, S.**, Su, Z. A Comprehensive Bayesian Approach to Envelope Models. Invited Presentation given (virtually) at EcoSta 2022 Hybrid Conference. Ryouko University, Japan, June, 2022.

- Chakraborty S, Su, Z. A Comprehensive Bayesian Framework for Envelope Models. Invited topic contributed oral presentation given (virtually) at Joint Statistical Meeting Virtual Conference, USA, August 2021.
- 7. **Chakraborty, S.**, Su, Z. A Comprehensive Bayesian Framework for Envelope Models. Invited oral presentation given (virtually) at CFE-CMStatistics conference, London, UK, December 2020.
- 8. **Chakraborty S**, Shen R., Begg C. B. Estimating Somatic Variant Richness in the Cancer Genome. Invited oral presentation given at the Epidemiology & Biostatistics Departmental Seminar Series, MSKCC, New York, NY, 2019.
- 9. **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, Hyderabad, India, 2017.

Invited Presentations at Regional Domestic Conferences/Meetings

- Chakraborty, S. Topical Hidden Genome: Discovering Latent Cancer Mutational Topics Using a Bayesian Multilevel Context-Learning Approach. Presentation given at Special Invited Session for Early Career Researcher at the Basu-Bahadur Conference: Theory and Foundations of Statistics in the Era of Big Data. Florida State University, Tallahassee, Florida. April 19-21, 2024.
- 2. **Chakraborty, S.**, Guan, Z., Martin, A., Begg, C B, and Shen, R. Mining mutation contexts across the cancer genome to map tumor site of origin. Invited Oral Presentation given at UPSTAT-2022 Conference. University at Buffalo, Buffalo, NY, May 2022.
- 3. **Chakraborty, S.**. Statistical Learning in Large-Scale Genome-Driven Cancer Characterization Problems. Invited Oral Presentation given (virtually) at IAD DAYS Conference. University at Buffalo, Buffalo, NY, May 2022.
- 4. **Chakraborty, S.**, Begg, C B, and Shen, R. Research Overview: Mining somatic mutations across the cancer genome to map tumor site of origin. Invited Oral Presentation given at SDOH: Methods for Identification & impact of Treatment of Opioid users. University at Buffalo, SUNY, USA, July 2021.

Invited Presentations at University/Research Institute Colloquia

- 1. **Chakraborty, S.**, Guan Z., Begg, C.B., Shen, R. Topical Hidden Genome: Discovering Latent Cancer Mutational Topics Using a Bayesian Multilevel Context-Learning Approach. Invited presentation given at the Department of Biostatistics Research Seminar Series at Viriginia Commonwealth University. Arlington, Virginia. March 2024.
- 2. **Chakraborty, S.**, Guan Z., Begg, C.B., Shen, R. Topical Hidden Genome: Discovering Latent Cancer Mutational Topics Using a Bayesian Multilevel Context-Learning

Approach. Invited presentation given at the School of Statistics Seminar Series at the University of Minnesota. Minneapolis, Minnesota. October 2023.

- 3. **Chakraborty, S.**, Begg, C.B., Shen, R. Using the "hidden genome" to mine mutation contexts across the cancer genome to map tumor site of origin. Invited seminar given (virtually) at the Mathematics Statistics Colloquium at the Bowling Green State University. Bowling Green, Ohio, USA. October, 2022.
- 4. **Chakraborty, S.**, Begg, C.B., Shen, R. Using the "hidden genome" to mine mutation contexts across the cancer genome to map tumor site of origin. Invited seminar given (virtually) at the Statistics Seminar Series at the University of Cincinnati. Cincinnati, Ohio, USA. September 2022.
- 5. **Chakraborty, S.** Statistics for Sizable Data. Invited Presentation given at Biostatistics New Graduate Students' Orientation. University at Buffalo SUNY. Buffalo, NY, USA. August 2021.
- Chakraborty, S., Guan, Z, Arora, A., Ecker, B., Martin, A., Jarnagin, W, Gonen M, Seier K, Begg C B, and Shen R. Mining mutation contexts across the cancer genome to map tumor site of origin with applications in Ampullary Adenocarcinoma. Invited Oral Presentation given at University at Buffalo Cancer Research Consortium Seminar Series, Buffalo, NY, July 2021.
- 7. **Chakraborty S**, Arora, A, Shen R, Begg C. B. Using Somatic Variant Richness to Mine Signals from Rare Variants & Using the "Hidden" genome. Oral presentation given at Epidemiology and Biostatistics departmental seminar series, Memorial Sloan Kettering Cancer, New York, NY, January 2020.

Contributed Presentations at International-Level Conferences

- 1. **Chakraborty S**, Arora A, Shen R, Begg C. B. Using Somatic Variant Richness to Mine Signals from Rare Variants in the Cancer Genome. Contributed poster presentation given at the annual postdoc symposium at the Memorial Sloan-Kettering Cancer Center, New York, NY, 2019.
- 2. **Chakraborty, S.**, Khare, K. Consistent estimation of the spectrum of trace class data augmentation algorithms. Contributed oral presentation given at ENAR, Atlanta, GA, 2018.
- 3. **Chakraborty, S.**, Wong, S. W. BAMBI: An R package for bivariate angular mixture models. Contributed oral presentation given at ENAR, Washington, D.C., 2017.
- 4. **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.

AWARDS AND HONORS

2024	Outstanding Junior Researcher 2023-2024 , School of Public Health and Health Professions, University at Buffalo SUNY. Buffalo, NY, USA.
2015, 2016, 2017	Graduate School Travel Award , University of Florida, Gainesville, FL, USA.
2013 – 2018	Graduate School Fellowship, University of Florida, Gainesville, FL, USA
2011	Graduate Merit List for B.Sc. (Hons.) in Statistics – Ranked 3 rd , University of Calcutta, Kolkata, WB, India.
2008 – 2011	Innovation in Science Pursuit for Inspired Research (INSPIRE) Scholarship, Department of Science & Technology, Government of India, India.

PROFESSIONAL MEMBERSHIP

2015 – Present	American Statistical Association
2016 – Present	International Biometric Society (IBS) Eastern North American Region
	(ENAR)
2020 – Present	International Indian Statistical Association
2022 – Present	International Biometric Society

TEACHING AND MENTORING

Doctoral Committee Chair/Co-chair

- 1. **Shuliang Yu.** PhD Student at Department of Biostatistics, SPHHP, University at Buffalo SUNY. (Spring 2023-Present).
- 2. **Yihao Tan.** PhD Student at Department of Biostatistics, SPHHP, University at Buffalo SUNY. (Spring 2023-Present). *Co-Chair: Prof. Marianthi Markatou.*
- 3. **Xinwei Huang.** PhD Student at Department of Biostatistics, SPHHP, University at Buffalo SUNY. (Fall 2022-Present).

4. **Shuangcheng Hua.** PhD Student at Department of Biostatistics, SPHHP, University at Buffalo SUNY. (Spring 2022-Present). *Primary Chair: Prof. Changxing Ma.*

Doctoral Committee Member

- 1. **Shuyi Liang.** PhD Student, Department of Biostatistics, SPHHP, University at Buffalo SUNY. (Spring 2024).
- 2. **Anran Liu.** PhD Student, Department of Biostatistics, SPHHP, University at Buffalo SUNY. (Spring 2024).
- 3. **Samantha Smith.** PhD Student, Department of Epidemiology and Environmental Health, SPHHP, University at Buffalo SUNY. (Fall 2023 Present).
- 4. **Junyu Nie.** PhD Student, Department of Biostatistics, SPHHP, University at Buffalo SUNY. (Fall 2022).
- 5. **Jiefei Wang.** PhD Student, Department of Biostatistics, SPHHP, University at Buffalo SUNY. (Spring 2022).

Masters' Committee Chair

- 1. **Shuliang Yu.** Graduate Student at Department of Biostatistics, SPHHP, University at Buffalo SUNY. (Fall 2023 Spring2024).
- 2. **Jiahui Shao.** MS Student at Department of Biostatistics, SPHHP, University at Buffalo SUNY. (Spring 2021 Summer 2022).

Masters' Committee Member

- 1. **Amanda Bernas.** MS Student, Department of Biostatistics, SPHHP, University at Buffalo SUNY. (Spring 2024).
- 2. **Jingyun Qian.** MS Student, Department of Biostatistics, SPHHP, University at Buffalo SUNY. (Spring 2024).
- 3. **Sarah Metz.** MS Student, Department of Biostatistics, SPHHP, University at Buffalo SUNY. (Spring 2023).
- 4. **Samantha Brosius.** MA Student, Department of Biostatistics, SPHHP, University at Buffalo SUNY. (Summer 2022).
- 5. **Yihao Tan.** MA Student, Department of Biostatistics, SPHHP, University at Buffalo SUNY. (Spring 2022).

6. **Sean Knipe.** MS Student, Department of Biostatistics, SPHHP, University at Buffalo SUNY. (Spring 2021).

BERD Consulting Lab Graduate Research Assistant Advisor

- 1. **Jia Wang.** PhD Candidate and Graduate Research Assistant, Department of Biostatistics. Statistics Consulting Lab, BERD Core, CTSI, University at Buffalo SUNY. Fall 2022 – Spring 2024.
- Zhaoqi Zhang. PhD Candidate and Graduate Research Assistant, Department of Biostatistics. Statistics Consulting Lab, BERD Core, CTSI, University at Buffalo SUNY. Fall 2022 – Spring 2024.

Graduate Student Mentor on Grant Applications

1. Jennifer Sosa. Graduate Student, Department of Biochemistry, Jacobs School of Medicine & Biomedical Sciences. University at Buffalo SUNY. Quantitative Mentoring for CTSI UL1 grant. (Fall 2022).

Undergraduate/Graduate Student Mentoring on Internship/Project

- 1. **Cindy Liu.** BS student at the University at Buffalo, SUNY. Project done at the BERD Winter Institute for Biostatistics 2022, Department of Biostatistics, SPHHP, University at Buffalo SUNY. (Winter 2023).
- 2. **Ethan Tong.** BS student at the University at Binghamton, SUNY. Project done at the BERD Winter Institute for Biostatistics 2022, Department of Biostatistics, SPHHP, University at Buffalo SUNY. (Winter 2023).
- 3. **Ashutosh Rastogi.** MS student at the University at Buffalo, SUNY. Project done on Data Visualization with R and ggplot2. Department of Biostatistics, SPHHP, University at Buffalo SUNY. (Fall 2022, Winter 2023).
- 4. **Andrew Mosbo.** BS student at the University at Buffalo, SUNY. Project done at the BERD Winter Institute for Biostatistics 2022, Department of Biostatistics, SPHHP, University at Buffalo SUNY. (Winter 2022).
- Michelle Gagliardo. BS student at SUNY Geneseo. Project done at the BERD Winter Institute for Biostatistics 2022, Department of Biostatistics, SPHHP, University at Buffalo SUNY. (Winter 2022).
- Tinh Ho. BS student at the University at Buffalo, SUNY. Project done at the BERD Winter Institute for Biostatistics 2022, Department of Biostatistics, SPHHP, University at Buffalo SUNY. (Winter 2022).

- 7. **Alexandra Vool.** BS student at the University at Buffalo, SUNY. Project done at the BERD Winter Institute for Biostatistics 2021, Department of Biostatistics, SPHHP, University at Buffalo SUNY. (Winter 2021).
- 8. **Jason Caballes.** BS student at the University at Buffalo, SUNY. Project done at the BERD Winter Institute for Biostatistics 2021, Department of Biostatistics, SPHHP, University at Buffalo SUNY. (Winter 2021).
- 9. Victoria Tripodi. BS student at the University at Buffalo, SUNY. Project done at the BERD Winter Institute for Biostatistics 2021, Department of Biostatistics, SPHHP, University at Buffalo SUNY. (Winter 2021).
- Ethan Ashby. BS student at Pomona College. Project done at the Quantitative Sciences Undergraduate Research Experience (QSURE) program, Department of Epidemiology & Biostatistics, Memorial Sloan-Kettering Cancer Center, New York, NY, USA. Comentored with Dr. Ronglai Shen. (Summer 2020).

Faculty Mentoring on Grant Applications

1. **Dr. Gillian Franklin, MD, PhD, MPH.** Assistant Professor Health Sci., Biomedical Informatics, University at Buffalo SUNY. Quantitative Mentoring for CTSA K Grant. (Fall 2022-Present).

Course Teaching

At the University at Buffalo, SUNY

- 1. **Topics in Advanced Modeling (PhD Level; Credit: 3.0).** Provides a PhD level introduction to advanced modeling techniques useful for complex statistical problems beyond the classical linear models. Specific topics include models for binary response data such as probit/logit models, analysis of discrete ordered responses, models for count data, log-linear models for contingency tables, mixed effects models, and Bayesian methods. University at Buffalo, SUNY. Spring 2023, Spring 2024.
- Statistical Data Mining I (Masters' Level; Credit: 3.0). Presents statistical models for statistical learning, inference, and prediction. Covers: linear and logistic regression, shrinkage, lasso, principal components, tree-based methods, model assessment and selection, model ensembles, support vectors, and R for data mining. Department of Biostatistics, University at Buffalo, SUNY. Fall 2022, Fall 2023.
- 3. Introduction to Theoretical Statistics I (Master's Level; Credit 3.0). Provides the background in probability and distribution theory required for theoretical statistics. Topics covered: axioms of probability theory, independence, conditional probability, random variables, discrete and continuous probability distributions, functions of random

variables, moment-generating functions, laws of large numbers, and central limit theorem. Department of Biostatistics, University at Buffalo, SUNY. Fall 2020.

4. Introduction to Theoretical Statistics II (Master's Level; Credit: 3.0). Introduces principles of statistical inference. Topics include classical methods of estimation, tests of significance, interval estimates, Neyman-Pearson's theory of testing hypotheses, maximum likelihood estimation, and Bayesian statistics. Department of Biostatistics, University at Buffalo, SUNY. Spring 2021, Spring 2022.

At the University of Florida

- Introduction to Probability/Fundamentals of Probability (Masters' and Advanced Undergraduate Level; Credit: 3.0). Introduces probability theory required for mathematical statistics. Topics covered: axioms of probability theory, independence, conditional probability, random variables, discrete and continuous probability distributions, moment-generating functions, functions of random variables, and multivariate distributions. Department of Statistics, University of Florida. Fall 2017.
- Introduction to Statistics I (Introductory Undergraduate Level; Credit 3.0). Provides an introduction to statistics at an undergraduate level. Topics covered: basics of statistics, central tendency, dispersion, elementary large sample theory, elementary statistical inference – estimation and hypothesis testing. Taught as a teaching assistant with scheduled weekly lab and tutoring sessions. Fall 2014, Spring 2015.

Workshop Teaching

- 1. **BERD Research-on-a-Napkin Consulting** Quick (bio-)statistical consultation to researchers interested in submitting a funding application for selected pilot RFAs. June 2021, June 2022.
- Classification Methods for Data Mining. CTSI Workshop: BERD Data Mining in Health Sciences. Clinical and Translational Science Institute, University at Buffalo, SUNY. April 2022.
- 3. **Statistics in the Era of Massive Data.** BERD Faculty Lecture. BERD Winter Institute for Biostatistics. University at Buffalo, SUNY. January 2022, 2023, 2024.
- 4. **Chakraborty, S.** Statistics for Complex, Large Scale Data. Invited Presentation given at Biostatistics New Graduate Students' Orientation. University at Buffalo SUNY. Buffalo, NY, USA. August 2022.
- 5. **Introduction to Bayesian Statistics.** BERD Winter Institute for Biostatistics 2021, 2022. University at Buffalo, SUNY. January 2021, 2022.

6. An Introduction to Hidden Genome Modeling with R package hidgenclassifier. Virtual Workshop given at Department of Biostatistics & Epidemiology, Memorial Sloan-Kettering Cancer Center, New York. November 2020.

SERVICE

Service to the Profession

- 2021 2025 Correspondent of Biometric Bulletin by the International Biometric Society, Eastern North American Region (ENAR) correspondent of the Biometric Bulletin publication.
- 2024 Joint Statistical Meeting Topic Contributed Session Organizer, Joint Statistical Meetings 2024. Accepted Topic Contributed Session Title: Recent Advances in Inferential Statistical Methods in Genomics. August 3-8, Portland, OR, USA.
- 2024 Attendee, ENAR Officers' Meeting, Attended as the Biometric Bulletin Correspondent in ENAR RAB/RECOM Luncheon Meeting at IBS ENAR Spring Meeting 2024. March 11, Baltimore Marriott Waterfront, Baltimore, MD, USA
- 2024 **ENAR Invited Session Organizer**, ENAR 2024 Spring Meeting. Accepted Invited Session Title: Recent Advances in Statistical Approaches for Postmarket Medical Product Safety. March 10-13, Baltimore Marriott Waterfront, Baltimore, MD, USA.
- 2023 Present **Chapter Secretary**, American Statistical Association, Buffalo Niagara Chapter, New York.
- 2023 Attendee, ENAR Officers' Meeting, Attended as the Biometric Bulletin Correspondent in ENAR RAB/RECOM Luncheon Meeting at IBS ENAR Spring Meeting 2023. March 20, JW Marriott Nashville, Nashville, TN, USA.
- 2023 **ENAR Invited Session Organizer**, ENAR 2023 Spring Meeting. Accepted Invited Session Title: Recent Advances in Inferential Statistical Methods in Genomics. March 19-22, JW Marriott Nashville, Nashville, TN, USA.
- 2022 **Attendee, ENAR Officers' Meeting**, Attended as the Biometric Bulletin Correspondent in ENAR RAB/RECOM Luncheon Meeting at Joint Statistical Meeting 2022. August 9, Washington DC, USA.

2022	Member, Core Organizing Committee, and IT Committee , UPSTAT 2022 Conference: Upstate NY Chapter of American Statistical Association. <i>As also noted under service to the University</i> <i>at Buffalo</i> . May 2-4, Jacobs School of Medicine, University at Buffalo SUNY, Buffalo, NY, USA.
2022	Invited Conference Session Organizer , Session Title: Recent Advances in Computational Bayesian Methods I & II, UP-STAT 2022 Conference, May 2-4, University at Buffalo, NY, USA.
2020 – Present	Peer Reviewer of Scholarly Journals (numbers in parentheses display times reviewed for the journal):-Biometrics (1)-Journal of the Royal Statistical Society (Series B) (4)-Journal of the American Statistical Association (1)-The American Statistician (1)-Electronic Journal of Statistics (1)-The R Journal (1)-Statistics in Medicine (1)-Journal of Multivariate Analysis (1)-Bayesian Analysis (3)-Journal of Graphical and Computational Statistics (5)-Frontiers in Oncology (1)-Journal of the Franklin Institute (2)-Mathematical Population Studies (1)-Journal of Machine Learning Research (1)-Psychometrika (1)
2022	Ad hoc Peer Reviewer of Academic Grant Proposals, Tufts CTSA BERD Small Grant Program.
2022, 2023	Ad hoc Peer Review of Academic Grant Proposals, US Department of Defense TBI panel.
2020	Ad hoc Peer Review of Academic Grant Proposals, National Science Foundation CAREER Grant.
2022 – Present	Member , Justice, Equity, Diversity, and Inclusion (JEDI) Outreach Group of the American Statistical Association.

Statistical Consultation Services

- Hollen Reischer, PhD. Visiting Assistant Professor, Department of Psychology, College of Liberal Arts and Sciences. University at Buffalo, SUNY. November 2023 January 2024.
- 2. **Rubelisa Oliviera,** DDS, MS, PhD. Clinical Assistant Professor, Department of Periodontics and Endodontics. School of Dental Medicine. University at Buffalo, SUNY. December 2023 Present.
- 3. **Megan Tracy,** MD. Clinical Assistant Professor, Department of Pediatrics. Jacobs School of Medicine & Biomedical Sciences. University at Buffalo, SUNY. December 2023.
- 4. **Jessica Reynolds,** PhD. Associate Professor, Department of Medicine. Jacobs School of Medicine & Biomedical Sciences. University at Buffalo, SUNY. December 2023.
- 5. **Janice Tona,** Clinical Associate Professor, Department of Rehabilitation Science. School of Public Health and Health Professions. University at Buffalo, SUNY. August 2023.
- 6. **Jennifer Abeles,** Clinical Assistant Professor, Department of Medicine, Jacobs School of Medicine and Biomedical Sciences, University at Buffalo SUNY. April 2023 Present.
- Seth R. Glassman, Assistant Clinical Professor of Medicine, Department of Medicine, Jacobs School of Medicine & Biomedical Sciences. University at Buffalo SUNY. April 2023 – Present.
- 8. **Christopher Heffner,** PhD, MS. Assistant Professor, Department of Communicative Disorders and Sciences, College of Arts and Sciences, University at Buffalo SUNY. April 2023.
- 9. **Mattie Rosi-Schumacher**, Resident. Department of Otolaryngology, Jacobs School of Medicine and Biomedical Sciences. University at Buffalo SUNY. March, 2023.
- 10. Lana M Pasek, EdM, MSN, RN, ANP, PhD(s). School of Nursing, University at Buffalo SUNY. February 2023.
- Sangita P. Patel, MD, PhD. Assistant Professor. Department of Ophthalmology, Jacobs School of Medicine & Biomedical Sciences. University at Buffalo, SUNY. August 2022; February 2023 – Present.
- 12. **Samantha Auerbach**, MSN, ANP-C, WHNP-BC. Presidential Scholar. School of Nursing, University at Buffalo SUNY. November 2022 Present.

- Panayotis Thanos, PhD. Senior Research Scientist. Department of Pharmacology and Toxicology, Jacobs School of Medicine & Biomedical Sciences. University at Buffalo, SUNY. September 2022 – Present.
- 14. **Yotam Weiner**, MD, PhD. Fellow. Department of Medicine, University at Buffalo SUNY. October 2022 January 2023.
- Manju Ceylony, MD. Clinical Associate Professor, Department of Medicine, Jacobs School of Medicine & Biomedical Sciences. University at Buffalo SUNY. October 2022 – December 2022.
- 16. **Jordan D. Frey**, MD. Center for Cancer Care, Department of Head and Neck Surgery and Plastic and Reconstructive Surgery, ECMC, Buffalo. Septmember 2022 November 2022.
- 17. **Filip Stefanovic**, PhD. Teaching Assistant Professor of Biomedical Engineering, Department of Biomedical Engineering, Jacobs School of Medicine & Biomedical Sciences, University at Buffalo, SUNY. August 2022.
- Alison Hendricks, PhD. Assistant Professor, Department of Communicative Disorders and Sciences, College of Arts and Sciences, University at Buffalo, SUNY. July 2022 – September 2022.
- Chelsie Ambruster, PhD. Assistant Professor, Department of Microbiology and Immunology, Jacobs School of Medicine & Biomedical Sciences, University at Buffalo SUNY. February 2021 – June 2021; December 2022 – Present.
- 20. **Tanmay Lele**, PhD. Unocal Professor, Biomedical Engineering and Chemical Engineering; Affiliated Faculty, Translational Medical Sciences. Department of Biomedical Engineering, Texas A&M University. July 2020 August 2021.
- 21. **Douglas J. Cassidy**, MD. Resident. Massachusetts General Hospital. October 2019 June 2020.
- 22. **Sasha Vaziri**, MD. Neurological Surgery, University of Florida. December 2017 September 2018.
- 23. **Nilovna Chatterjee**, Graduate student, Department of Soil Sciences, University of Florida. January 2017 July 2017.

University at Buffalo, SUNY Services

Service to the University

- 2022 Member, Core Organizing Committee, and IT Committee, UPSTAT 2022 Conference: Upstate NY Chapter of American Statistical Association, May 2-4, Jacobs School of Medicine, University at Buffalo SUNY, Buffalo, NY, USA. As also noted under service to the profession.
- 2022 2024 **Judge, BERD High School Poster Contest**, Department of Biostatistics, School of Public Health and Health Professions (SPHHP), University at Buffalo, SUNY.
- 2022 2024 **Statistical Consultation**: Statistical consultation provided to 19 University at Buffalo PIs as a part of BERD services (See Statistical Consultation Services).
- 2021 2022 **BERD Research-on-a-Napkin Consulting** Quick (bio-)statistical consultation to researchers interested in submitting a funding application for selected pilot RFAs. As also noted under Workshop teaching.

Service to the School of Public Health and Health Professions (SPHHP)

- 2021 2024 **Member of the SPHHP Faculty Council**, School of Public Health and Health Professions, University at Buffalo, SUNY. Buffalo, NY, USA.
- 2021 2024 **Reviewer of SPHHP By-laws**, Reviewed SPHHP By-laws and reviewed specific proposed modifications to the By-laws as part of services provided by the SPHHP Faculty Council.
- May 2022 **Member of the Organizing Committee**, SPHHP Faculty Council hosted event 'New Frontiers: LMS, Teaching Techniques and More' delivered by Prof. Jessica Kruger.
- NovemberMember of the Organizing Committee, SPHHP Faculty Council20222022 hosted event 'Faculty Promotion Workshop' delivered by Prof.
Jo Freudenheim.
- March 2023 **Member of the Organizing Committee**, SPHHP Faculty Council hosted event 'Resources for Research'

- March 2023 **Contact for SPHHP Faculty Council**, Served as the SPHHP Faculty Council contact person for the presentation 'UB's Center for Computational Research' at the SPHHP Faculty Council-hosted event 'Resources for Research'.
- NovemberMember of the Organizing Committee, SPHHP Faculty2023Council2023 hosted event 'Resources for Teaching: Navigating the
use of AI in the Classroom'.
- March 2024 **Member of the Organizing Committee**, SPHHP Faculty Council hosted event 'Ice Skating at the North Buffalo Ice Rink!'.
- April 2024 **Member of the Organizing Committee**, Faculty Council-hosted event 'Students as Research Subjects: All You Need to Know'.

Service to the Department of Biostatistics

- 2024 Member, Master's-level Biostatistician Search Committee, Served as a regular committee member. Department of Biostatistics SPHHP and CTSI BERD, University at Buffalo, SUNY.
- 2022 2023 **Organizer of Departmental Seminar Series**, Department of Biostatistics, SPHHP, University at Buffalo, SUNY.
- 2022 2024 **Judge, BERD High School Poster Contest**, Department of Biostatistics, School of Public Health and Health Professions (SPHHP), University at Buffalo, SUNY. *As also noted under service to the university.*
- 2022 2024 Faculty reviewer, Biostatistics MA and PhD admission committee, Reviewer of graduate student applications. Department of Biostatistics, University at Buffalo, SUNY. Buffalo, NY, USA.
- 2022 2023 Member, Biostatistics Assistant/Associate Professor Search Committee, Served as a regular committee member. Department of Biostatistics, University at Buffalo, SUNY. Buffalo, NY, USA.
- 2021 2023 **Member, Biostatistics Chair Search Committee**, Served as a regular committee member. Department of Biostatistics, University at Buffalo, SUNY. Buffalo, NY, USA.
- 2021 2024 **Representative of Biostatistics Department at SPHHP Faculty Council**, School of Public Health and Health Professions, University at Buffalo, SUNY. Buffalo, NY, USA.

2020 – Present **Attendee in Biostatistics Faculty Meetings**, Attended as a faculty member in Biostatistics Faculty Meetings.

Prior Professional Service

2017 – 2018 **Statistics Student Seminar Series Organizer**, *Department of Statistics, University of Florida*, Gainesville, FL, USA.