

Suman Majumder

Interdisciplinary Statistical Research Unit

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Education

Aug 2016– Jun 2020 Ph.D., Statistics, North Carolina State University

Thesis Title: Spatiotemporal inference and applications
for large datasets

Advisor: Brian J. Reich

Jul 2014–May 2016 M.Stat., Indian Statistical Institute, Kolkata

Jul 2011–May 2014 B.Stat. (Hons.), Indian Statistical Institute, Kolkata

Experience

Dec 2024–Current Assistant Professor, Interdisciplinary Statistical Research Unit,
Indian Statistical Institute, Kolkata

Aug 2023–Dec 2024 Assistant Professor, Department of Statistics, University of
Missouri

Jul 2020–Jun 2023 Postdoctoral Fellow, Department of Nutrition, Harvard T. H.
Chan School of Public Health

Jan 2020–Jun 2020 Research Assistant, Department of Entomology and Plant
Pathology, North Carolina State University

Aug 2018–Dec 2019 Teaching Assistant, Department of Statistics, North Carolina
State University

Aug 2017–Jun 2018 Research Assistant, The Statistical and Applied Mathematical
Sciences Institute (SAMSI)

Aug 2016–May 2017 Teaching Assistant, Department of Statistics, North Carolina
State University

Teaching

2024 Fall	STAT 4760/7760, Statistical Inference	University of Missouri
2024 Spring	STAT 9370, Multivariate Analysis	University of Missouri
2023 Fall	STAT 4760/7760, Statistical Inference	University of Missouri
2021 Fall	BST 228, Applied Bayesian Analysis (Guest Lecture)	Harvard School of Public Health
2019 Spring	ST 422, Introduction to Mathematical Statistics (Guest Lectures)	North Carolina State University
2018 Fall	ST 740, Introduction to Bayesian In- ference (Guest Lecture)	North Carolina State University

Teaching Assistant

2019 Fall	ST 555, Statistical Programming I, NCSU
2019 Summer	ST 555, Statistical Programming I, NCSU
2019 Spring	ST 422, Introduction to Mathematical Statistics II, NCSU
2018 Fall	ST 503, Fundamentals of Linear Models and Regression, NCSU
2018 Fall	ST 740, Introduction to Bayesian Inference, NCSU
2017 Summer	ST 555, Statistical Programming I, NCSU
2017 Spring	Tech TA, NCSU
2016 Fall	Tech TA, NCSU

Honors and Awards

2021	Richard L. Anderson Award at SRCOS Summer Research Conference
2021	Boyd Hashbarger Travel Award for SRCOS Summer Research Conference
2020	ASA ENVR Student Paper Award Winner
2019	Travel Award for IMS/ASA Spring Research Conference
2018 - current	Member of NC Alpha chapter of Statistics, <i>Mu Sigma Rho</i>
2011 - 2016	KVPY Scholarship, Dept. of Science & Technology, Govt. of India

Publications (*:co-first author)

Peer-Reviewed Journals

- **Majumder, S.**, Coull, B. A., Mark Welch, J. L., La Riviere, P. J., Dewhirst, F. E., Starr, J. R., Lee, K. H. (2024); [Multivariate cluster point process to quantify and explore multi-entity configurations: Application to biofilm image data](#). Statistics in Medicine

- Giffin, A., Gong, W., **Majumder, S.**, Rappold, A. G., Reich, B. J., Yang, S. (2022); [Estimating intervention effects on infectious disease control: the effect of community mobility reduction on Coronavirus spread](#). Spatial Statistics.
- **Majumder, S.**, Guan, Y., Reich, B. J., Saibaba, A. K. (2022); [Kryging: Geostatistical analysis of large-scale datasets using Krylov subspace methods](#). Statistics and Computing.
- Dorman, S. J., Hopperstad, K. A., Reich, B. J., **Majumder, S.**, Kennedy, G., Reisig, D. D., Greene, J. K., Reay-Jones, F. P. F., Collins, G., Bacheler, J. S., and Huset, A. S. (2021); [Landscape-level variation in *Bt* crops predict *Helicoverpa zea* \(Lepidoptera: Noctuidae\) resistance in cotton agroecosystems](#). Pest Management Science.
- **Majumder, S.**, Guan, Y., Reich, B. J., O'Neill, S. and Rappold, A. G. (2020); [Statistical Downscaling with Spatial Misalignment: Application to wildland Fire PM_{2.5} Concentration Forecasting](#). Journal of Agricultural, Biological and Environmental Statistics.
- **Majumder, S.**, Biswas, A., Roy, T., Bhandari, S., and Basu, A. (2020); [Statistical Inference Based on a New Weighted Likelihood Approach](#). Metrika.
- Haskett, M. E., **Majumder, S.**, Kotter-Grühn, D. and Gutierrez, I. (2020); [The role of university students' wellness in links between homelessness, food security, and academic success](#). Journal of Social Distress and the Homelessness.
- Biswas, A., **Majumder, S.**, Niyogi, P. G. and Basu, A. (2020); [A Weighted Likelihood Approach to Problems in Survival Data](#). Sankhyā.
- Haskett, M. E., Kotter-Grühn, D. and **Majumder, S.** (2020); [Prevalence and correlates of homelessness and food insecurity among university students](#). Journal of College Student Development.
- Biswas, A., Roy, T., **Majumder, S.**, and Basu, A. (2015). [A new weighted likelihood approach](#). Stat.

Under Review/ Submitted

- Sahoo, S., **Majumder, S.***, Hazra, A.; Computationally Scalable Bayesian SPDE Modeling for Censored Spatial Responses; *Under Revision, New England Journal of Statistics and Data Science*; [ArXiv](#)
- Jun, Y., **Majumder, S.**, Chakraborty, S., Lim, C. Y., Dey, T.: BSTZINB: A Bayesian Framework for Spatio-Temporal Modeling of Zero-Inflated Count Data in Epidemiology; *Submitted, Computational Statistics*

In Preparation

- Gong, Y., **Majumder, S.**, Coull, B. A., Mark Welch, J. L., La Riviere, P. J., Starr, J. R., Lee, K. H.: Multivariate spatial LGCP modeling with INLA-SPDE, with application to human microbiome imaging data (2024+)
- **Majumder, S.**, Sahoo, I.; Spatial Analysis under Lossy Compression (2024+)

- **Majumder, S.**, Sahoo, I., Hazra, A.; Covariate Association with PFOS Concentration in California (2024+)
- **Majumder, S.**, Coull, B. A., Mark Welch, J. L., Starr, J. R., Lee, K. H.; A Bayesian approximate multivariate log-Gaussian Cox process model to approximate multiple 2D z-slices of a 3D image (2024+)
- Lee, K. H., Coull, B. A., **Majumder, S.**, La Riviere, P. J., Borisy, G., Dewhirst, F. E., Mark Welch, J. L., Starr, J. R.; Multivariate spatial point process models for multi-species biofilm image data (2024+)
- Bater, J., **Majumder, S.***, Huang, Y., Moscicki, A., Yao, T., Lee, K. H., Starr, J. R.; Oral pathogen Filifactor alocis's relative abundance is lower among HIV-positive youth with less antiretroviral therapy exposure (2024+)

Technical reports

- **Majumder, S.**, Gopi, K., Horsley, J., Yuen, C., Cope, M., Morgan, G. (2023). Enhanced AQVx Near Real Time Blending Utility.
- Biswas, A., Niyogi, P. G., **Majumder, S.**, Bhandari, S. K., Ghosh, A., and Basu, A. (2018). [Theoretical Properties of a New Weighted Likelihood Estimator for Right Censored Data.](#)

Software

- BSTZINB [R package, [CRAN](#)]
- MCPP [R package, [GitHub](#)]
- Kryging [Matlab, [GitHub](#)]
- Warping utility [R, [GitHub](#)]

Mentoring

Graduate Advisor/Co-advisor

- Kushal Sedhai (M.A., Statistics, 2024) [First Position: Missouri Department of Social Services]

Graduate Committee Member

- Myungsoo Yoo (Ph.D., Statistics, 2024)

Presentations

Invited Talks

- International Chinese Statistical Association Applied Statistics Symposium, Nashville, TN, USA, 2024
- International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2023), Berlin, Germany, 2023
- Department of Statistical Sciences and Operations Research, Virginia Commonwealth University, Richmond, VA, USA, 2023
- Department of Statistics 60th Anniversary Conference, University of Missouri, Columbia, MO, USA, 2023
- Department of Epidemiology and Biostatistics, Arnold School of Public Health, University of South Carolina, Columbia, SC, USA, 2023.
- International Chinese Statistical Association Applied Statistics Symposium, Gainesville, FL, USA, 2022.
- Department of Mathematics and Statistics, University of Massachusetts-Amherst, Amherst, MA, USA, 2022.
- Center for Air pollution, energy and health Research, Webinar series, 2020.

Contributed Talks

- Joint Statistical Meetings, Washington DC, USA, 2022.
- ENAR 2021 Spring Meeting, Online, 2021.
- ENVR Student Paper Awards Section, Joint Statistical Meetings, Online, 2020.
- International Conference on Robust Statistics, Kolkata, West Bengal, India, 2015.

Posters

- ASA ENVR Workshop, Boulder, CO, USA, 2024 (Upcoming)
- ASA/Kutner Faculty Poster Session, SRCOS Summer Research Conference, Clemson, SC, USA, 2024
- Boyd Hashbarger Student Poster Competition, SRCOS Summer Research Conference, Jekyll Island, GA, USA, 2021.
- Statistical Significance poster competition, Joint Statistical Meetings, Denver, CO, USA, 2019.
- IMS/ASA Spring Research Conference, Blacksburg, VA, USA, 2019.
- SAMSI Graduate Poster Session, Raleigh, NC, USA, 2018.
- IISA International Conference on Statistics, Gainesville, FL, USA, 2018.

Professional Activities

- Served as a reviewer for Statistics and Computing, Journal of the Royal Statistical Society Series C, Spatial Statistics, Public Library of Sciences ONE, Sankhya Series B, Journal of Agricultural, Biological and Environmental Statistics, Computer Science and Data Analysis, Environmental and Ecological Statistics, Ecological Applications, Econometrics and Statistics, and Springer Nature Applied Sciences.
- Served as a judge for the Mizzou DataFest in 2024.

Social Activities

- Organizer, Departmental Diwali Celebration, Department of Statistics, University of Missouri, 2023-2024.
- Volunteer, Service Raleigh, 2019.
- Head, Sponsorship Committee, Integration: the annual techno-cultural fest of Indian Statistical Institute, Kolkata, 2015, 2014.
- Member, Literary Activities Committee, Boys' Hostel of Indian Statistical Institute, 2014, 2013, 2012.
- Head, Advertising Committee, Reunion Celebration Committee of Rahara Ramakrishna Mission Boys' Home, 2013.