## MOHAMMAD SAMSUL ALAM

Postdoctoral Asse Biostatistics & B Duke University	ociate I 10075 Hock Plaza, 2424 Erwin Road, Durham, NC, 27705 ioinformatics I mohammadsamsul.alam@duke.edu thttps://samsul.quarto.pub
Education	<ul> <li>PhD in Statistics , Department of Statistics, North Carolina State University, Spring, 2024. Dissertation Title: Modern Methods for the Next Generation of Functional Data.</li> <li>MS in Applied Statistics, ISRT, University of Dhaka, CGPA-3.93 (Out of 4.00), 2012 Thesis Title: Design Sensitivity of Bootstrap Methods in Variance Estimation.</li> <li>BS in Applied Statistics, ISRT, University of Dhaka, CGPA-3.87 (Out of 4.00), 2011</li> </ul>
Research Interests	• Functional Data Analysis, Longitudinal Data Analysis, High-dimensional Data Analysis, Classifica- tion and Clustering, Spatial statistics, Spatio-temporal statistics, Machine Learning, Mathematical Statistics, Multivariate Data Analysis.
Manuscript (in progress))	<ul> <li>Alam, M.S., and Luo, S. (2025+). Dynamic Prediction of Dementia Risk in Alzheimer's Disease Integrating Longitudinal High-dimensional Multi-omics Data. (under preparation)</li> <li>Alam, M.S., and Luo, S. (2025+). Joint modeling of high-dimensional longitudinal and time-to-event data using supervised low-rank tensor decomposition. (under preparation)</li> <li>Alam, M.S., Choi, D., Koner, S., and Luo, S. (2025+). Dynamic prediction using functional latent trait joint models for multivariate longitudinal outcomes: An application to Parkinson's disease. (under review in Statistics in Medicine)</li> <li>Alam, M. S. and Staicu, A. M. Classification using repeated and spatially indexed multivariate functional data: an application to prostate cancer identification. (under preparation)</li> <li>Alam, M. S., Staicu, A. M., and Pixu, S. Supervised low-rank approximation of high-dimensional multivariate functional data via tensor decomposition. (under review in Annals of Applied Statistics)</li> </ul>
Publications	• Guo V Zou H Alam MS and Luo S (2025) Integrative Multi-Omics and Multivariate

- Guo, Y., Zou, H., Alam, M.S., and Luo, S. (2025). Integrative Multi-Omics and Multivariate Longitudinal Data Analysis for Dynamic Risk Estimation in Alzheimer's Disease. Statistics in Medicine. (https://doi.org/10.1002/sim.70105).
  - Alam, M. S., and Staicu, A. M. (2024). Modeling longitudinal skewed functional data. *Biometrics*, 80(4).
  - Lipi N., Alam, M. S., and Hossain, S. S. (2020). A Generalized Estimating Equations Approach for Modeling Spatially Clustered Data. Austrian Journal of Statistics, 50(4), 36-52.
  - Alam, M. S., and Paul S. (2020). A Comparative Analysis of Clustering Algorithms to Identify the Homogeneous Rainfall Gauge Stations of Bangladesh. Journal of Applied Statistics, 47(8), 1460 - 1481.
  - Alam, M. S., Hossain, S. S., and Sheela, F. F. (2019). Spatial Smoothing of Low Birth Weight Rate in Bangladesh using Bayesian Hierarchical Model. Journal of Applied Statistics, 46(10), 18870–1885.
  - Hossain S. S., and Alam, M. S., (2017). MISSPECIFICATION EFFECT IN BOOTSTRAP VARI-ANCE ESTIMATION FOR ESTIMATORS OF THE POPULATION MEAN, Far East Journal of Theoretical Statistics, 53(1), 1 - 14.
  - Ahmed M.K., Alam, M. S., Yousuf, A. H. M., and Islam, M. M. (2016). A long-term trend in precipitation of different spatial regions of Bangladesh and its teleconnections with El Ni $\tilde{n}o$ /Southern Oscillation and Indian Ocean Dipole. Theoretical and Applied Climatology, 129(1-2), 473 - 486.
  - Alam, M. S., and Hossain, S. S. (2016). A Geostatistical Approach to Predict the Average Annual Rainfall of Bangladesh. Journal of Data Science, 14(1), 149 - 165.

• 32nd International Biometric Conference (IBC), December 8 – 13, 2024, Atlanta, Georgia, USA.

• The 19th Annual CFAR Fall Scientific Retreat, Duke Center for AIDS Research, September 14, 2023, Durham, USA.

- Joint statistical meeting (JSM), August 6 11, 2022, Washington, D.C., USA.
- The 18th Annual CFAR Fall Scientific Retreat, Duke Center for AIDS Research, September 22, 2022, Durham, USA.
- The 36<sup>th</sup> annual conference of the International Society for Clinical Biostatistics (ISCB 2015), 23-27 August, 2015, Utrecht, The Netherlands.
- International Conference on Applied Statistics (ICAS), 2014, 27 29 December, 2014, Dhaka, Bangladesh.

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Professional	Postdoctoral Associate	June $01, 2024 - Present$		
Experience	Department of Biostatistics & Bioinformatics, Duke University			
	Statistics Data Science Consultant	August 16, 2023 – May, 2024		
	Data & Visualization Services, North Carolina State University Libraries			
	Quantitative Summer Intern	<b>May</b> , 2023 – <b>July</b> , 2023		
	Duke Center for AIDS Research, Duke University School of Medicine Project Title: Single cell transcriptomic analysis of broadly neutralizing B cells in humans PI: Kevin Wiehe, QM: Lynn Lin			
	Graduate Teaching Assistant	August 2022 – May, 2023		
	Department of Statistics, North Carolina State University			
	Quantitative Summer Intern	May, $2022 - August$ , $2022$		
	Duke Center for AIDS Research, Duke University School of Medicine Project Title: Dimension reduction of longitudinal microbiome data associated with HIV infection QM: Pixu Shi and Josh Granek			
	Graduate Student Mentor	May, $2022 - August$ , $2022$		
	Directed Research for Undergraduates Students in Math and Statistics (DRUMS), North Carolina State University			
	Project Title: Using statistical methods to grade cancer severity Advisor: Ana-Maria Staicu	with histopathology imaging		
	Graduate Teaching Assistant	August, 2021 – May, 2022		

Graduate Research AssistantJuly, 2020 - August, 2021Department of Statistics, North Carolina State University

Department of Statistics, North Carolina State University

Graduate Teaching AssistantAugust, 2019 – June, 2020Department of Statistics, North Carolina State University

Assistant Professor (on leave) May, 2017 – Present

Institute of Statistical Research and Training (ISRT), University of Dhaka

## Lecturer

February, 2014 – May, 2017

	Institute of Statistical Research and Training (ISRT), University of Dhaka			
	Lecturer Department of Statistics, Jagannath University	<b>October,</b> 2013 – <b>February,</b> 2014		
Awards	• GSA Travel Assistance Award, Spring (2023), North Carolina State University.			
	• Conference Award for the Developing Countries, 36 <sup>th</sup> Annual Conference (2016), International Society for Clinical Biostatistics (ISCB).			
	• <b>Dean's Award</b> for the excellent result in B. Faculty of Science, University of Dhaka.	S. (Honors) examination-2011 in Applied Statistics,		
Reviewer	<ul><li>Journal of Applied Statistics</li><li>Theoretical and Applied Climatology</li></ul>	pplied Statistics and Applied Climatology		
Memberships	• American Statistical Association (ASA), Eastern North American Region (ENAR).			
Course Projects	<ul> <li>Bivariate penalized smoothing for irregularly sampled data.</li> <li>Spatial smoothing on irregular graphs.</li> <li>Classifiers for determining biodegradability of chemical using QSAR approach.</li> <li>Estimation for Logistic Regression under Model Misspecification.</li> </ul>			
Consulting Experiences	• Elderly Population in Bangladesh: Current F graph of Bangladesh, Bangladesh Bureau of St	eatures and Future Perspectives, Population Mono- atistics, 2015.		
	• Knowledge, Attitude and Practice regarding IC Empowering Women through ICT Towards Di Baily Road, Dhaka, 2016.	CT by the Rural Women of Bangladesh, Tottho Apa: gital Bangladesh, Jatiyo Mohila Sangstha, 145 New		
Professional Development	• Induction Workshop, Center of Excellence in T 2017.	eaching & Learning, University of Dhaka, May $6-7,$		
Programming Languages	• R, Python, SAS, SPSS, STATA, and MATLAB.			
PhD Courses	• Statistical Methods I, Computation for Statistical Research, Advanced Statistical Inference, Linear Models and Variance Components, Advanced Computing, Statistical Methods II, Dynamic Treatment Regime, Statistical Consulting			
Courses Taught	• Environmental and Spatial Statistics, Statisti Analysis-I, Advanced Sampling Techniques, Da lation Studies, Experimental Design Using R, I eling, Time Series Analysis.	cal Inference-I, Statistical Inference-II, Multivariate ta Analysis Using S Language and MATLAB, Popu- Basic and Linear Algebra, Structural Equation Mod-		