

ARITRA HALDER

CONTACT INFORMATION	Dornsife School of Public Health, Drexel University, Nesbitt Hall, Floor 5, Office 514, 3215 Market Street, Philadelphia, PA 19104. Phone: (267) 359-6147.	Email: aritra.halder@drexel.edu Webpage: aritrah.com Github: arh926
RESEARCH INTERESTS	Bayesian Modeling, Spatial and Temporal Statistics, Statistical Computing.	
EMPLOYMENT	Drexel University Assistant Professor of Biostatistics.	2022–
	Adjunct, Department of Biomedical Sciences, Elkins Park, PA.	2024–
	Research Collaborator, Children’s Hospital of Phila. w. Paula Magee.	2025–
	University of Virginia Research Assistant Professor	2020–2022
EDUCATION	University of Connecticut , Storrs, Connecticut USA Ph.D., M.S., Statistics	July 2020
	Chennai Mathematical Institute , Siruseri, Chennai India M.Sc., Applied Mathematics	May 2016
	Presidency College , Calcutta University, Kolkata, West Bengal India B.Sc., Honors in Statistics	June 2014
PROFESSIONAL EXPERIENCE	The Travelers Companies , Hartford, Connecticut, USA.	2016 – 2020
HONORS AND AWARDS	University of Connecticut <i>Pre-Doctoral Dissertation Fellowship:</i> Awarded as a part of the training grant sponsored by the Travelers Companies	2016-20
	<i>Financial Award:</i> To attend SAMSI Workshop on the Interface of Statistics and Optimization.	Spring 2017
	<i>Doctoral Dissertation Fellowship:</i> Awarded by the Graduate School.	Spring 2020
	<i>Doctoral Student Travel Fellowship:</i> Awarded by the Graduate School.	Spring 2020
	<i>IMS Hannan Graduate Student Travel Award (\$500):</i> Awarded by the Institute of Mathematical Statistics.	May 2020
	<i>ISBA Travel Award (\$300):</i> Awarded by the International Society for Bayesian Analysis.	February 2022

FEDERAL GRANTS
RECEIVED

CURRENT

- 1. NSF DMS 2515897/2515899/2515898 (Role: Lead PI (33%), Collaborative Proposal with Didong Li, Co-PI, UNC and Sudipto Banerjee, Co-PI, UCLA) Rates of Change and Boundary Assessment in Spatiotemporal Processes. Project Period: 2026-2029. Amount: \$320,000. PI Portion: \$100,000. Start Date: June, 1, 2026
- 2. R21 CA305033 National Institutes of Health, National Institute of Environmental Health Sciences (Role: co-I (8%), PI: Anneclaire DeRoos) *Cancer Risks from Unregulated Contaminants of Public Water Systems*. Project Period: 2026-2027. Amount: \$402,425

PAST

- 1. R56 ES036250, National Institutes of Health, National Institute of Environmental Health Sciences (Role: co-I (17%), PI: Anneclaire DeRoos) *Extreme Weather Impacts on Children's Acute and Chronic Health Outcomes: a Multi-Site Study with Evaluation of Vulnerabilities*. Project Period: 2024-2025. Amount: \$687,343
- 2. United States Department of Agriculture (USDA) Strategic Priority Grant Program (SPGP): *Impacts of Rural Broadband and Broadband Programs Across Racial and Ethnic Groups*. (25%) Role: (co-PI w/ Sallie Keller, University of Virginia). Amount: \$600,000
- 3. Army Research Institute (ARI) (Grant Contract ID: W911NF-20-2-0027): *Modeling of Veteran career pathways within the Army*. (25%) Amount: \$2,124,158 (co-PI w/ Joshua R. Goldstein & Sallie Keller, University of Virginia)

COURSES TAUGHT	Drexel University , Philadelphia, Pennsylvania	Fall 2022 – Present
	• BST Elective: Special Topics in Statistics	Spring Qtr. 2023
	• BST Elective: Spatial and Spatiotemporal Modeling with Applications	Winter Qtr. 2024
	• BST: Advanced Statistical Computing	Spring Qtr. 2024–
	• BST: Generalized Linear Models	Winter Qtr. 2025–
	• BST: Statistical Inference I	Winter Qtr. 2026
	• Urban Health Collaborative, Summer Workshop	2024–
	<i>Spatial and Spatiotemporal Modeling with Applications in R</i>	
	• Honorary Course Offering (12 weeks)	2024–
	<i>Review of Statistical Inference I & II–Ph.D. Qualifying Examination Prep.</i>	
	• Independent Study Victoria Ryan	Fall 2024
	<i>Respondent Driven Sampling to Determine Network Size</i>	

University of Connecticut, Storrs, Connecticut USA

- 1. *Instructor* Jan., 2020 – May, 2020
 - STAT 3025-Q Statistical Methods Spring '20
- 2. *Teaching Assistant* Aug., 2016 – Jul., 2020
 - STAT 1000-Q Introduction to Statistics, STAT 1100-Q Elementary Concepts of Statistics.
 - STAT 3494-W Seminar Writing Course in Statistics.
- 3. *Teaching Assistant* Winter Intersession, 2017
 - STAT 1100-Q Introduction to Statistics.

DOCTORAL STUDENTS

- Daphne Liu (Expected 2029) co-advised w. Loni P. Tabb
- Emama Amin (Expected 2029) co-advised w. Loni P. Tabb
- Sabrina Afroz (Expected 2029) co-advised w. Loni P. Tabb

MASTERS STUDENTS

- Karlin Moore, MS, Biostatistics (2023) Thesis Title: *Spatial and Temporal Trends in Air Pollution at the State and Sub-city Level in Pennsylvania and South Philadelphia, PA (Winner of Best Thesis Award, DSPH)*
- Andrew Reid (2026)

SOFTWARE PACKAGES

1. GitHub (Non Peer Reviewed): [sptwombling](#); [spWombling](#); [sptwdglm](#); [manifoldGPgrad](#)
2. CRAN (Peer Reviewed): nimblewomble (2025) Bayesian Wombling using ‘nimble’ [\[DOI\]](#)

PUBLICATIONS

IN PREPARATION

18. Halder, A., Li, D. and Banerjee, S., Smoothness in Scalable Gaussian Processes
17. Li, D., **Halder, A.** and Banerjee, S., On statistical inference for rates of change in spatial processes over Riemannian manifolds.
16. Chen, J., **Halder, A.**, Banerjee, S., Li, Y. and Li, D., The Nearest-Neighbor Derivative Process: Modeling Spatial Rates of Change in Massive Datasets.

SUBMITTED

15. Palmer-McCabe, A., Jahn, J., **Halder, A.**, Pearsall, H., Kondo C., M, De Roos J., A. (2026+) Association of Racial Segregation and Violations of the Safe Drinking Water Act in the United States 2010 – 2020, *Environmental Research: Health*
14. **Halder, A.**, Stinziano, J. and Persi, J. (2025+) Bayesian Wombling for Tracking Invasive Species, *Minor revision in Environmental and Ecological Statistics*

PEER-REVIEWED

13. **Halder, A.** and Banerjee, S. (in press, 2025+) **nimblewomble**: An R package for Bayesian Wombling using **nimble**, *R-Journal* [DOI](#)
12. Chen, J., Xiong, C., Sun, Q., Wang, G. W., Gupta, G. P., **Halder, A.**, Li, Y. and Li, D. (in press, 2024+) Investigating spatial dynamics in spatial omics data with StarTrail, *Journal of the American Statistical Association, Applications & Case Studies*. [DOI](#) [PMC1346541](#)
11. **Halder, A.**, Li, D. and Banerjee, S. (in press, 2024+) Bayesian Spatiotemporal Wombling, *Journal of the American Statistical Association, Theory & Methods*. [DOI](#) [PMC13664449](#)
10. Charankevich, H., Goldstein, J., **Halder, A.**, Pender, J. (2023). Measuring Efficacy of the Rural Broadband Initiatives: Evidence from the Housing Market. In Proceedings of Eighth International Congress on Information and Communication Technology. ICICT 2023. *Lecture Notes in Networks and Systems, vol 693*. Springer, Singapore. [DOI](#)
9. **Halder, A.**, Mohammed, S. and Dey, D. K. Bayesian Variable Selection in Double Generalized Linear Tweedie Spatial Process Models. (2023) (in-press) *New England Journal of Statistics in Data Science: Special Issue on Modern Bayesian Methods with Applications in Data Science*. 1(2) 187–199 [DOI](#)
8. **Halder, A.**, Banerjee, S. and Dey, D. K. Bayesian Modeling with Spatial Curvature Processes. (2023) 119(546), pp. 1155–1167, *Journal of the American Statistical Association, Theory & Methods*. [DOI](#) [PMC11238907](#)

7. **Halder, A.**, Mohammed, S., Chen, K. and Dey, D. K. Spatial risk estimation in Tweedie double generalized linear models. (2022) *Proceedings of International E-Conference on Mathematical and Statistical Sciences: A Selçuk Meeting*.
6. Babu, G. R., Ray, D., Bhaduri, R., **Halder, A.** and Kundu, R. , Menon, G. I. and Mukherjee, B. (2021) COVID-19 Pandemic in India: Through the Lens of Modeling. *Global Health: Science and Practice*. DOI
5. **Halder, A.**, Mohammed, S., Chen, K. and Dey, D. K. (2021) Spatial Tweedie exponential dispersion models: an application to insurance rate-making. *Scandinavian Actuarial Journal* 10(2021) pp. 1017–1036. DOI
4. Sen, K., Mukherjee, R., Sansare, S., **Halder, A.**, Kashi, H., Ma, A. W. K., Chaudhuri, B. (2021) Impact of powder-binder interactions on 3D printability of pharmaceutical tablets using drop test methodology *European Journal of Pharmaceutical Sciences*. 160 105775. DOI
3. Ray, D., Salvatore, M., Bhattacharyya, R., Wang, L., Mohammed, S., Purkayastha, S., **Halder, A.**, Rix, A., Barker, A., Kleinsasser, M., Zhou, Y., Song, P., Bose, D., Banerjee, M., Baladan-dayuthapani, V., Ghosh, P., Mukherjee, B. (2020) *Predictions, role of interventions and effects of a historic national lockdown in India's response to the COVID-19 pandemic: data science call to arms. Harvard Data Science Review, Special Issue-1*. DOI
2. Mukherjee, R., **Halder, A.**, Naik, S., Sansare, S. and Chaudhuri, B. (2020). Statistical quantification of parameters altering tribo-charging in pharmaceutical mixtures. *Featured Article, Journal of Pharmaceutical Sciences*. DOI
1. Das, S., **Halder, A.**, and Dey, D. K. (2017). Regularizing Portfolio Risk: A Bayesian Approach. *Methodology and Computing in Applied Probability*. 19(3) 865–889. DOI

NON-PEER REVIEWED

1. Das, S., **Halder, A.**, Lahiri, A. and Dey, D. K. (2018) Modeling portfolio risk and return using Dirichlet process prior. [arXiv](#)

CONFERENCE ABSTRACTS

1. Sharma, R., Frueh, L., Joyce, E. K., Just, A. C., **Halder, A.**, Sheffield, P. E., and Clougherty, J. (2024) Spatial heterogeneity in the acute effects of ambient air pollution and temperature on pediatric seizures and epilepsy across New York, *ISEE Conference Abstracts*. DOI

DEPARTMENTAL
SERVICE

COMMITTEES

- Co-chair EPI/BIO Seminar Committee 2022–2025
- Biostatistics Program Committee 2023–Present
- Open-Rank Biostatistics Faculty Search Committee 2024–2025

DOCTORAL DISSERTATION COMMITTEES

- Jihyeon Kwon, PhD. Candidate, Biostatistics. Dissertation Advisor: Harrison Quick.
- Victoria Ryan, PhD. Candidate, Epidemiology. Dissertation Advisor: Ayden Scheim.
- Amber Palmer, PhD. Candidate, Epidemiology. Dissertation Advisor: Anneclaire DeRoos.
- Apollo Kivumbi, PhD. Candidate, Epidemiology. Dissertation Advisor: Kristen Lyall.
- Jenna Carcione, PhD. Candidate, Biostatistics. Dissertation Advisor: Lucy Robinson.

- Katherine Roshak, PhD. Candidate, Epidemiology. Dissertation Advisor: Theresa Sweet.
- Deepika Chauhan, PhD. Candidate, Epidemiology. Dissertation Advisor: Brian Lee.
- Gianni Anfuso, PhD. Candidate, Biostatistics. Dissertation Advisor: Usama Bilal and Harrison Quick.
- Md. Karimuzamman, PhD. Candidate, Biostatistics. Dissertation Advisor: Brisa N. Sanchez.
- Hal Chen, PhD. Candidate, Biostatistics. Dissertation Advisor: Brisa N. Sanchez.

ACADEMIC SERVICE

GRANT REVIEWER (NO. OF PANELS: 2)

- NIH-NICD Study Section on Neuro Informatics, Computational and Data Analysis (2 panels)
2025–present

REVIEWER (TOTAL: 30)

- R-Journal (1) *2023–present*
- Annals of Applied Statistics (5) *2023–present*
- Spatial Statistics (3) *2019– present*
- Sankhyā B (3) *2019– present*
- Journal of Spatial Science (2) *2021– present*
- Environmental and Ecological Statistics (1) *2022– present*
- Statistics in Medicine (2) *2022– present*
- Electronic Journal of Statistics (2) *2022– present*
- Journal of Royal Statistical Society: Series C (2) *2022– present*
- Journal of Urban Health (2) *2025– present*
- ASTIN Bulletin (1) *2023–Present*
- Statistics and Data Science in Imaging (1) *2026–Present*
- Scientific Reports, Nature (2) *2026–Present*
- Biostatistics (1) *2026–Present*
- Spatial and Spatiotemporal Epidemiology (2) *2026–Present*

CHAIRING

- IISA 2021 Conference
 - IS-58 Contemporary Bayesian Modeling with Applications
- New England Statistical Symposium, 2022
 - IS-13: Advances in Statistical Modeling of Complex Structured Brain Data
- 64-th International Statistics Institute (ISI) World Statistics Congress, Ottawa, Canada, 2023
 - Modern Advances in Statistical Analysis of Spatial and Spatiotemporal Data

ORGANIZING

- Joint Statistical Meetings, 2022: Modern Advances in Modeling complex Spatial data
- 64-th International Statistics Institute (ISI) World Statistics Congress, Ottawa, Canada, 2023: Modern Advances in Statistical Analysis of Spatial and Spatiotemporal Data
- International Society for Bayesian Analysis World Meeting, 2024, Venice, Italy: Innovations in Spatial and Spatiotemporal Statistics and its Applications
- New England Statistical Symposium, 2024, Storrs, Connecticut: Statistical Inference, Geometry and Artificial Intelligence

INVITED DEPARTMENT TALKS AND COLLOQUIUMS

- Department of Statistics, Presidency University, Kolkata, India. Invited by Prof. Biswajit Roy, Chair, Department of Statistics.
- Department of Statistics and Data Science, University of Cincinnati, Cincinnati, Ohio. Invited by Dr. Xia Wang, Associate Professor, Department of Statistics and Data Science.
- **Department of Data Science, Chennai Mathematical Institute, Chennai, India.** Invited by Dr. Sourish Das, Associate Professor, Department of Data Science (Apr. 22, 2022)
- Department of Biostatistics, Dornsife School of Public Health, Drexel University, Philadelphia, Pennsylvania. Invited by Dr. Leslie A. McClure, Professor and Chair (Jun. 15, 2022)
- Mathematical Biocomplexity, Department of Mathematics, University of Virginia, Charlottesville, Virginia. Invited by Dr. Christian Reidys, Professor and Director (Aug. 12, 2022)
- **Department of Statistics, Iowa State University,** Ames, Iowa. Invited by Dr. Sarah Nusser Emeritus Professor and Dr. Zhenguan Zhu, Professor (Sep. 12, 2022).
- **Department of Statistics, George Washington University,** Washington D.C. Invited by Dr. Subrata Kundu, Professor and Chair (Sep. 16, 2022).
- **Department of Statistics, George Mason University,** Fairfax, Virginia. Invited by Dr. Abolfazl Safikhani, Assistant Professor (Mar. 10, 2023).
- **Webinar organized by ASA Philadelphia Chapter,** Philadelphia, Pennsylvania. Invited by Fengqing (Zoe) Zhang, Associate Professor (Jun. 6, 2024)
- Department of Biostatistics, Pennsylvania State University, Hershey, PA. Invited by Dr. Shouhao Zhao, Professor, Department of Biostatistics (Sep. 15, 2026)

CONFERENCES & SYMPOSIUMS

- 31st New England Statistics Symposium, 2017
Presented *Modeling Large Insurance Claims and Occurrence Data.*
- Joint Statistical Meetings 2020
Presented (Contributed Session) *Curvature processes: Directional concavity in Gaussian random fields.*
- Conference organized by the International Indian Statistical Association (IISA) 2020
Presented (Contributed Session) *Spatial Tweedie exponential dispersion models: an application to insurance rate-making.*
- Joint Statistical Meetings 2021
Presented (Contributed Session) *Bayesian spatiotemporal modeling of Army Veteran Career Pathways*
- Federal Committee on Statistical Methodology Research and Policy Conference (Virtual) 2021
Creating Policy Tools for Broadband Subsidy programs: Combining Spatial Regression Discontinuity Designs and Bayesian Wombling
- EAC-ISBA 2021
Presented (Poster Session) *Curvature Processes: Directional Concavity in random fields*

- IISA Mini Conference (Contributed) (Virtual) 2022
Presented *Curvature Processes: Directional Concavity in random fields*
- Workshop in Probability and Statistical Methods, Brazil (Invited) (Virtual) 2022
Presented *Curvature Processes: Directional Concavity in random fields*
- 35-th New England Statistical Symposium, Storrs (Invited) (In-person) 2022
Presented *Bayesian Variable Selection in Double Generalized Linear Tweedie Spatial Process Models*.
- 5-th International Conference on Econometrics and Statistics (Invited) (Virtual) 2022
Presented *Bayesian Variable Selection in Double Generalized Linear Tweedie Spatial Process Models*.
- 24-th International Conference on Computational Statistics (Contributed) (Virtual) 2022
Presented *Bayesian Variable Selection in Double Generalized Linear Tweedie Spatial Process Models*.
- International E-Conference on Mathematical and Statistical Sciences: A Selçuk Meeting (Contributed) (Virtual) 2022
Presented *Spatial risk estimation in Tweedie double generalized linear models*.
- **10-th International Purdue Symposium on Statistics**—Demystifying Data Science via Statistics: Theory and Applications, June 6–9. Session on “Emerging Challenges in Spatial Statistics”. Presented *Bayesian Modeling with Spatial Curvature Processes*. 2023
- 37-th New England Statistical Symposium, Storrs (Invited) (In-person). Session on “Advanced Spatial Learning Methods for Biomedical Applications”. Presented *Bayesian Modeling with Spatial Curvature Processes*. 2024
- Applied Statistics Symposium at Vanderbilt University, International Chinese Statistical Association (Invited) Presented *Bayesian Modeling with Spatial Curvature Processes*. 2024
- International Chinese Statistical Association, Annual USA Chapter, UConn (Invited) Presented *Bayesian Spatiotemporal Wombling*. 2025
- EnviBayes, Texas A&M (Invited) Presented *Bayesian Spatiotemporal Wombling*. 2025
- National Institute of Statistical Sciences, Statistics Serving Societ (S3) Ingram Olkin Forums, *Geospatial Data for Maternal Health* 2026

WORKSHOPS:

- SAMSI Workshop in the Interface of Statistics and Optimization (WISO), Duke University 2017
- Broadening Participation: 2022 Mathematical and Physical Sciences (MPS) Workshop for Young Investigators, National Science Foundation (NSF) and University of Florida 2022

PROFESSIONAL SOCIETY MEMBERSHIP

- American Statistical Association (ASA)
- Institute of Mathematical Statistics (IMS)
- International Society for Bayesian Analysis (ISBA)
- International Chinese Statistical Association (ICSA)
- International Indian Statistical Association (IISA) (Life-Member)

ACADEMIC
REFERENCES

Sudipto Banerjee
Professor, Senior Associate Dean
Department of Biostatistics,
Fielding School of Public Health
University of California
sudipto@ucla.edu