

CURRICULUM VITAE
Abhirup Datta, MStat, PhD

Part I

PROFESSIONAL DATA

Address: Department of Biostatistics, Johns Hopkins Bloomberg School of Public Health.
615 North Wolfe Street, #E3640, Baltimore, MD 21205

Phone: (410) 502 2988

Email: abhidatta@jhu.edu

Webpage: abhidatta.com

EDUCATION AND TRAINING

University of Minnesota

Doctor of Philosophy (Ph.D.), Biostatistics

2012 – 2016

Indian Statistical Institute, Kolkata

MStat (Master's degree, Statistics), specialization in Math-Stat-Probability

2008 – 2010

Indian Statistical Institute, Kolkata

BStat (Bachelor of Science, Statistics) with Honors

2005 – 2008

PROFESSIONAL EXPERIENCE

Johns Hopkins Department of Biostatistics

Baltimore, MD

- Professor *July 2025 – Present*
- Associate Professor *Jan 2022 – July 2025*
- Assistant Professor *Jul 2016 – Dec 2021*

Morgan Stanley

Quantitative Analyst

Jul 2010 – Jul 2012
Mumbai, New York

Affiliations

Co-leader, Bayesian Learning and Spatio-temporal (BLAST) Working Group 2020 – Present
Department of Biostatistics, Johns Hopkins Bloomberg School of Public Health
<https://jhublast.github.io/>

Member, Data Science and AI Institute (DSAI) 2025 – Present
Johns Hopkins University

Member, Institute for Data Intensive Engineering and Science 2025 – Present
Johns Hopkins University

Affiliate, Spatial Science for Public Health Center 2017 – Present
Johns Hopkins Bloomberg School of Public Health

Co-leader, Small Area Estimation and Spatial Statistics Working Group 2017 – 2019
Department of Biostatistics, Johns Hopkins Bloomberg School of Public Health

PROFESSIONAL ACTIVITIES

Society Membership

American Statistical Association (ASA)
International Biometric Society (ENAR)
International Indian Statistical Association (IISA)
International Society for Bayesian Analysis (ISBA)
Institute for Mathematical Statistics (IMS)

Society Leadership

- Program Chair for 2024–2025, ASA Section on Statistics and the Environment (ENVR)
- Organizer, Graduate Student Mentoring Session, ASA Section on Statistics and the Environment, JSM 2024
- ASA SBSS Representative, ENAR 2023 Conference
- Ad-hoc Committee for Early Career Awards, 2021, International Society for Bayesian Analysis

Panels/Committees

- Program Committee for the Joint Statistical Meetings (JSM) 2025
- Program Committee, I-GUIDE Forum 2025: Geospatial AI and Innovation for Sustainability Solutions
- Scientific Program Committee, International Indian Statistical Association Conference 2025

- 2023–Present: Scientific Advisory Committee for the WHO Pathology-informed Reference Death Archive
- 2021: Ad-hoc Committee for Early Career Awards, International Society for Bayesian Analysis
- Scientific Program Committee, International Indian Statistical Association Conference 2021

EDITORIAL AND OTHER PEER REVIEW ACTIVITIES

Journal Editorial Boards

- Research Committee of the Royal Statistical Society (Committee for selecting discussion papers for the Royal Statistical Society Series B) *2026 onwards*
- Journal of the American Statistical Association: Applications and Case Studies *2024–Present*
- Journal of the Royal Statistical Society, Series B *2023–Present*
- Journal of the Royal Statistical Society, Series A *2023–Present*
- Biometrics *2022–Present*
- Sankhya (Series B) *2022–Present*
- Journal of Computational and Graphical Statistics *2020–Present*

Journal and Conference Peer Review Activities

Advances in Statistical Climatology Meteorology and Oceanography

American Journal of Epidemiology (AJE)

Artificial Intelligence and Statistics Conference 2021 (AISTATS 2021)

Annals of Applied Statistics

Annals of Statistics

Bayesian Analysis

Biometrics

Biometrika

Biostatistics

Brazilian Journal of Probability and Statistics

Canadian Journal of Statistics

Computational Statistics and Data Analysis (CSDA)

Electronic Journal of Statistics

Environmental Health Perspectives (EHP)

Environmental Science and Technology (ES&T)

Environmetrics

Harvard Data Science Review

IEEE Transactions on Pattern Analysis and Machine Intelligence

Journal of Agricultural Biological and Environmental Statistics (JABES)

Journal of the American Statistical Association: Applications and Case Studies (JASA-ACS)

Journal of the American Statistical Association: Theory and Methods (JASA-TM)

Journal of Computational and Graphical Statistics (JCGS)
Journal of Machine Learning Research (JMLR)
Journal of Multivariate Analysis (JMVA)
Journal of the Royal Statistical Society, Series B (JRSSB)
Journal of the Royal Statistical Society, Series C (JRSSC)
New England Journal of Statistics and Data Science (NEJSDS)
Sankhya A
Scientific Reports
Spatial Statistics
Statistica Sinica
Statistical Science
Statistics and Computing
Statistics in Medicine

Grant Review Panels

- 2025: Data Science and AI Institute Demonstration Projects, Johns Hopkins University
- 2025: CHARMED Center Pilot Grants, Johns Hopkins Bloomberg School of Public Health
- 2023: Faculty Innovation Fund Panel, Johns Hopkins Bloomberg School of Public Health
- 2023: National Science Foundation (NSF), Methodology, Measurement, and Statistics (MMS) Program
- 2020: National Science Foundation (NSF), Division of Mathematical Sciences (DMS)

HONORS AND AWARDS

Early Career Awards:

- 2025: Elected **Fellow of the American Statistical Association**
- 2024: **COPSS Emerging Leader Award**. This award from the Committee of Presidents of Statistical Societies (COPSS) recognizes statistical scientists within 10 years of terminal degree who show evidence of and potential for leadership and who will help shape and strengthen the field
- 2023: **Abdel El-Shaarawi Early Investigator's Award**. Awarded by The International Environmental Society (TIES), this award is given annually to one early career researcher within 12 years of completion of their PhD for their statistical contributions to Environmental Sciences.
- 2021: **International Indian Statistical Association Early Career Award**. The ECADS (Early Career Award in Statistics and Data Sciences) is an annual award from the International Indian Statistical Association (IISA) that recognizes outstanding contributions in Applications and Statistical Practice by a person under 41 years of age.
- 2021: **American Statistical Association Early Investigator Award**. Awarded by the American Statistical Association Section on Statistics and the Environment (ENVR), this annual award recognizes outstanding contributions to environmental statistics in the first 12 years after obtaining terminal degree.
- 2018: Honorable mention (Finalist): Savage Award (Applied Methodology), International Society for Bayesian Analysis (ISBA)

Other Research Awards:

- 2026: Public Health Practice Award, Johns Hopkins University with Chris Heaney, Matthew Aubourg, and Lauren Deanes for the project "*Community Engaged Investigation of Coal Dust and Air Pollution Burden in Curtis Bay, Baltimore*"
- 2025: **JASA Reproducibility Award** with advisee Wentao Zhan for the article "*Neural networks for geospatial data*" published in the Journal of the American Statistical Association
- 2017: **American Statistical Association Outstanding Statistical Application Award** for the article "*Nonseparable dynamic nearest neighbor Gaussian process models for large spatio-temporal data with an application to particulate matter analysis*" published in the Annals of Applied Statistics
- 2016: ENAR Distinguished Student Paper Award, International Biometric Society, Austin, TX.
- 2016: Delta Omega Honorary Society Student Inductee (Pi Chapter), Minneapolis, MN.
- 2014: JSM Student Paper Award, American Statistical Association, Section on Bayesian Statistical Science, Boston, MA. Also selected for best paper award in Statistics and the Environment Section
- 2014: Best Paper Award, Division of Biostatistics, University of Minnesota, Minneapolis, MN.
- 2016: Best Student Seminar Presentation Award, Division of Biostatistics, University of Minnesota, Minneapolis, MN.

- 2015: Interdisciplinary Doctoral Fellowship 2015-16, Division of Biostatistics, University of Minnesota Graduate School, Minneapolis, MN.

Teaching, Advising, and Mentoring awards:

- 2020: **JHU AMTRA Award** (Advising, Mentoring, & Teaching Recognition Award) by JHSPH Student Assembly for 2019-2020.
- Excellence in Teaching awards, Johns Hopkins Bloomberg School of Public Health,
 - (1) 2026, Term 3: Probability Theory III
 - (2) 2025, Term 4: AI Methods for Geospatial Data
 - (3) 2025, Term 3: Probability Theory III
 - (4) 2023, Term 4: Probability Theory IV
 - (5) 2023, Term 3: Probability Theory III
 - (6) 2022: Probability Theory IV
 - (7) 2021: Probability Theory IV
 - (8) 2018: Probability Theory IV
- 2014: Outstanding Teaching Assistant Award, Division of Biostatistics, University of Minnesota, Minneapolis, MN.

Peer review awards:

- (2018) Top 1% of reviewers in Mathematics, Publons.
- (2017) Top 1% of reviewers in Mathematics, Publons.

RESEARCH

* before a number indicates manuscripts where Dr. Datta is the first author or senior/corresponding author;

△ indicates a PhD, ScM, or post-doctoral advisee of Dr. Datta;

† indicates equal contributions.

Statistical Methodology

- *89. **Datta A**, Stein ML Consistent Infill Estimability of the Regression Slope Between Gaussian Random Fields Under Spatial Confounding *The Annals of Statistics (to appear)* [arXiv](#)
- *88. △Song J, **Datta A** Fast Variational Bayes for Large Spatial Data *Journal of Computational and Graphical Statistics (to appear)* [arXiv](#)
- *87. **Datta A** Robustness of model-based geostatistics for prevalence mapping *Statistical Science (to appear)*
- *86. △Heffernan C, Koehler K, Gentner DR, Peng RD, **Datta, A** Unified calibration and spatial mapping of fine particulate matter data from multiple low-cost air pollution sensor networks in Baltimore, Maryland *Environmetrics* 2026;37(4):e70100.
 - Article for the maps displayed in [Baltimore City Air Quality Dashboard](#)
- *85. △Gilbert B, **Datta A**, Casey JA, Ogburn EL (2025) A causal inference framework for spatial confounding *Journal of the Royal Statistical Society: Series A (tentative acceptance subject to minor revisions)* [arXiv](#)
 - To be considered for Discussion paper (paper for reading at the Royal Statistical Society)
- 84. Smith BB, **Datta A**, Caffo B (2026) Shortcomings of deep learning for distributional predictors: a note *Biostatistics* 27(1): kxaf051
- *83. △Zhan W, **Datta A** geospaNN: A Python package for geospatial analysis using neural networks *Journal of Open Source Software*
- *82. △Zhan W, **Datta A** (2025) Neural networks for geospatial data *Journal of the American Statistical Association* 120(549): 535–547
 - Winner of the 2025 JASA Reproducibility Award
- *81. Pramanik S, Zeger S, Blau D, **Datta A** (2025) Modeling Structure and Country-specific Heterogeneity in Misclassification Matrices of Verbal Autopsy-based Cause of Death Classifiers *Annals of Applied Statistics* 19(2): 1214–1239
- *80. △Gilbert B, Ogburn EL, **Datta A** (2025) Consistency of common spatial estimators under spatial confounding *Biometrika* 112(2)
- *79. △Dey D, Banerjee S, Lindquist M, **Datta A** (2025) Graph-constrained Analysis for Multivariate Functional Data using Graphical Gaussian Processes *Journal of Multivariate Analysis* 207, 105428

- *78. ^ΔHeffernan C, Koehler K, Levy-Zamora M, Buehler C, Gentner D, Peng RD, **Datta, A** (2025) A causal machine-learning framework for studying policy impact on air pollution: a case study in COVID-19 lockdowns *American Journal of Epidemiology* 194(1), 185–194
- Student paper award for C. Heffernan from the American Statistical Association Section on Statistics and the Environment at the Joint Statistical Meetings (2023)
- *77. ^ΔGilbert B, **Datta A** (2024) Visibility graph-based covariance functions for scalable spatial analysis in non-convex domains *Biometrics* 80(3)
- *76. [†]Tang B, ^ΔPramanik S, Zhao Y, Caffo B, **Datta A** (2024) Direct Bayesian Regression for Distribution-valued Covariates *Electronic Journal of Statistics* 18(2): 3327-3375
75. Bonas M, **Datta A**, Wikle CK, Boone EL, Alamri FS, Hari BV, Kavila I, Simmons SJ, Jarvis SM, Burr WS, Pagendam D, Chang W, Castruccio S (2024) Assessing Predictability of Environmental Processes with Statistical and Machine Learning Models *Environmetrics*, 36(1), e2864.
- Selected as a discussion paper for Environmetrics. Will be published with Discussion.
74. Wang G, **Datta A**, Lindquist M (2024) Improved fMRI-based Pain Prediction using Bayesian Group-wise Functional Registration *Biostatistics* 25(3), 885-903
- *73. ^ΔHeffernan C, Peng RD, Gentner D, Koehler K, **Datta, A** (2023) A dynamic spatial filtering approach to mitigate underestimation bias in field calibrated low-cost sensor air-pollution data *Annals of Applied Statistics* vol. 17, no. 4, pp. 3056–3087, 2023.
- Student paper award for C. Heffernan at the EnviBayes 2023 conference of the International Society for Bayesian Analysis (ISBA)
- *72. ^ΔSaha A, Basu S, **Datta A** (2023) Random forests for spatially dependent data *Journal of the American Statistical Association* 118.541 665-683.
- *71. **Datta A.** (2023) Invited Discussion of “Saving Storage in Climate Ensembles: A Model-Based Stochastic Approach” *Journal of Agricultural Biological and Environmental Statistics* 28.2 (2023): 352-357.
70. ^ΔDey D, **Datta A**, Banerjee S (2023) Modeling Multivariate Spatial Dependencies Using Graphical Models *New England Journal of Statistics and Data Science* 1(2):283–295
- *69. ^ΔDey D, **Datta A**, Banerjee S (2022) Graphical Gaussian Processes for highly multivariate spatial data *Biometrika*, 109(4), 993-1014.
- Student paper award for D. Dey from the American Statistical Association Section on Bayesian Statistics (SBSS) at the Joint Statistical Meetings (2021)
- *68. ^ΔFiksel J, **Datta A**, Amouzou A, Zeger S. (2022) Generalized Bayes Quantification Learning under Dataset Shift *Journal of the American Statistical Association* 117(540), 2163-2181.
67. Wikle CK, **Datta A**, Hari BV, Boone EL, Sahoo I, Kavila I, Castruccio S, Simmons SJ, Burr WS, Chang W (2022) An Illustration of Model Agnostic Explainability Methods Applied to Environmental Data *Environmetrics*, 34(1), e2772.

66. Finley AO, **Datta A**, Banerjee S. (2022) spNNGP R package for Nearest Neighbor Gaussian Process models *Journal of Statistical Software*, 103(1), 1–40.
65. ^ΔSaha A, **Datta A**, Banerjee S (2022) Scalable Predictions for Spatial Probit Linear Mixed Models Using Nearest Neighbor Gaussian Processes *Journal of Data Science*, 20(4), 533-544,
- *64. ^ΔSaha A, Basu S, and **Datta A.**, (2022) RandomForestsGLS: An R package for Random Forests for dependent data *Journal of Open Source Software*, 7(70), 3780
63. Gao L., **Datta A**, Banerjee S (2022) Hierarchical Multivariate Directed Acyclic Graph Auto-Regressive (MDAGAR) Models for Spatial Diseases Mapping *Statistics in Medicine*, 41(16): 3057– 3075
- *62. ^ΔFiksel J, Zeger S, **Datta A** (2021) A Transformation-free Linear Regression for Compositional Outcomes and Predictors *Biometrics*, 78, 974– 987.
61. Wang G, **Datta A**, Lindquist M (2021) Bayesian Functional Registration of fMRI Data *Annals of Applied Statistics*, 16(3), 1676-1699.
- *60. **Datta A** (2021) Sparse nearest-neighbor Cholesky matrices in spatial statistics *Wiley Interdisciplinary Reviews: Computational Statistics*, e1574.
- *59. **Datta A**, ^ΔFiksel J, Amouzou A, Zeger S. (2020) Regularized Bayesian transfer learning for population level etiological distributions *Biostatistics*, 22(4), 836-857.
58. Gao, L., **Datta A**, Banerjee S, (2020) Spatial Modeling for Correlated Cancers Using Bivariate Directed Graphs *Annals of Cancer Epidemiology 4*, ISSN 2616-4213
- *57. **Datta A**, ^ΔPita, A, Rao, A, Sithole, B, Mnisi, Z, and Baral, S. (2020) Size Estimation of Key Populations in the HIV Epidemic in eSwatini using incomplete and misaligned capture-recapture data *Annals of Applied Statistics*, 14(3), 1207–1241
- *56. **Datta A**, Zou H. (2019) A note on cross-validation for Lasso under measurement errors *Technometrics*, 62(4), 549–556
- *55. **Datta A**, Banerjee S, Hodges JS., Gao, L. (2019) Spatial disease mapping using Directed Acyclic Graph Auto-Regressive (DAGAR) models *Bayesian Analysis* 14(4), 1221–1244
54. Taylor-Rodriguez D, Finley AO, **Datta A**, Babcock C, Andersen H, Cook BD, Morton DC, Banerjee S. (2019) Spatial Factor Models for High-Dimensional, Large Spatial Data: An Application in Forest Variable Mapping *Statistica Sinica* 29(3) 1155–1180
53. Zhang L, **Datta A**, Banerjee S. (2019) Practical Bayesian Inference for Massive Spatial Data on Modest Computing Environments *Statistical Analysis and Data Mining: The ASA Data Science Journal* 12.3:197-209.
52. Finley AO, **Datta A**, Cook BC, Morton DC, Andersen HE, Banerjee S. (2019) Efficient algorithms for Bayesian Nearest Neighbor Gaussian Processes *Journal of Computational and Graphical Statistics* 28.2 (2019): 401-414.
51. Heaton MJ, **Datta A**, Finley AO, Furrer R, Guhaniyogi R, Gerber F, Gramacy RB, Hammerling D, Katzfuss M, Lindgren F, Nychka DW, Sun F, Zammit-Mangion A. (2019) A Case Study Competition Among Methods for Analyzing Large Spatial Data *Journal of Agricultural, Biological and Environmental Statistics* 24(3) 398–425.

- Best Paper award for 2018-2019 in the Journal of Agricultural, Biological and Environmental Statistics by the International Biometric Society
- *50. **Datta A**, Lin W, Rao A, Diouf D, Kouame A, Edwards JK, Bao L, Louis TA, Baral SB (2019) Bayesian Estimation of MSM Population Size in Côte d'Ivoire *Statistics and Public Policy* 6(1), 1-13.
- *49. **Datta A**, Zou H, Banerjee S. (2019) Bayesian high-dimensional regression for change point analysis *Statistics and Its Interface* 12(2), 253-264.
- *48. [^]Saha A, **Datta A**. (2018) BRISC: Bootstrap for rapid inference on spatial covariances *Stat*, e184
- American Statistical Association Section on Statistical Computing Student paper award for A. Saha at Joint Statistical Meetings, 2018.
 - One of two papers selected for 'Highlights of the Stat journal' session at International Statistical Institute World Congress, 2019.
- *47. **Datta A**, Zou H. (2017) CoCoLasso for High-dimensional Error-in-variables Regression *Annals of Statistics* 45(6): 2400-2426
46. **Datta A**, Banerjee S, Finley AO, Gelfand AE. (2016) On nearest-neighbor Gaussian process models for massive spatial data *Wiley Interdisciplinary Reviews: Computational Statistics* 8(5) 162-171
- *45. **Datta A**, Banerjee S, Finley AO, Hamm NAS, Schaap M. (2016) Non-separable Dynamic Nearest Neighbor Gaussian Process Models for Large Spatio-temporal Data with Application to Particulate Matter Analysis *Annals of Applied Statistics* 10(3): 1286-1316
- American Statistical Association Outstanding Statistical Application award (2017)
 - Eastern North American Region (ENAR) distinguished student paper award for A. Datta (2016)
- *44. **Datta A**, Banerjee S, Finley AO, Gelfand AE. (2016) Hierarchical Nearest Neighbor Gaussian Process models for Large Geostatistical Datasets *Journal of the American Statistical Association* 111(514): 800-812
- One of top 5 most cited papers in the Journal of the American Statistical Association between 2016-2020.
 - American Statistical Association Section on Bayesian Statistics (SBSS) student paper award for A. Datta at the Joint Statistical Meetings (2014)

Scientific Applications

43. Perin, J, ... **Datta, A**, Strong KL, Liu L, Black RB Systematic estimates of the global causes of neonatal and under-five mortality in 2000 - 2024 *BMJ* (to appear)
- Article for the 2025 report on [Levels and trends in child mortality](#) published by United Nations Inter-Agency Group for Child Mortality Estimation (UN IGME) [Report](#)

- *42. ^ΔPramanik S, Wilson EB, Kalter HD, Akelo V, Amouzou A, Black RE, Blau D, Macicame I, Muir JA, Lee KH, Liu L, Whitney C, Zeger S, **Datta A** Country-specific Estimates of Misclassification Rates of Computer-Coded Verbal Autopsy Algorithms *BMJ: Global Health* 2026;11:e021747
41. Perez-Saez J, Zheng Q, / ... 20 authors ... / Lessler J, **Datta A**, Azman AS, Lee EC (2025) Geographical shifting of cholera burden in Africa and its implications for disease control *Nature Medicine* , 31(10), 3380-3387.
40. Deanes LN, Salmerón BD, Aubourg MA, / ... 15 more ... / **Datta A**, Heaney CD (2025) Relation of wind direction and coal terminal activity patterns with air pollution burden in a community bordering a coal export terminal, Curtis Bay, Maryland, USA. *Air Quality, Atmosphere and Health*
- Press coverage:
- [Maryland will require giant ‘windscreen’ to shield South Baltimore from CSX coal dust](#)
 - [Hopkins study confirms operations at Baltimore coal terminal caused air pollution in Curtis Bay community](#)
 - [Air Pollution in Baltimore’s Curtis Bay Community Linked to Nearby Coal Terminal Activities and Wind](#)
 - [Johns Hopkins study confirms operations at Baltimore coal terminal caused air pollution in Curtis Bay community](#)
 - [Study links Port of Baltimore coal terminal to Curtis Bay air pollution](#)
 - [New study strengthens link between CSX coal terminal and air pollution in Baltimore’s Curtis Bay](#)
- *39. ^ΔChen Y, Liu L, McCormick T, **Datta A** (2025) LAVA: Language Model Assisted Verbal Autopsy for Cause-of-Death Determination *ML4H (Machine Learning for Health)* [OpenReview](#)
38. Rosenblum, M, Chin, ET, Ogburn, EL, Nishimura, A, Westreich, D, **Datta, A**, Vanderplas, S, Cuellar, M and Thompson, WC (2024) Incorrect Statistical Reasoning in Guyll et al. Leads to Biased Claims about Strength of Forensic Evidence *Proceedings of the National Academy of Sciences* 121(45) e2315431121
- *37. ^ΔFiksel J, ^ΔGilbert B, Wilson E, Kalter H, Kante A, Akum A, Blau D, Bassat Q, Macicame I, Gudo E, Black R, Zeger S, Amouzou A, **Datta A** (2023) Correcting for verbal autopsy misclassification bias in cause-specific mortality estimates *American Journal of Tropical Medicine and Hygiene* 108.5 Suppl: 66.
36. Levy-Zamora M, Buehler C, **Datta, A**, Gentner D, Koehler K (2023) Identifying optimal co-location calibration periods for low-cost sensors *Atmospheric Measurement Techniques* 16.1: 169-179.
35. Wilks M, Green T, Rule AM, Zamora ML, Buehler C, **Datta A**, Gentner DR, Putcha N, Hansel NN, Kirk GD, Raju S, McCormack M, Koehler K (2023) Evaluation of Calibration Approaches for Indoor Deployments of PurpleAir Monitors *Atmospheric Environment* 119944.

34. Rosenblum, M, Chin, ET, Ogburn, EL, Nishimura, A, Westreich, D, **Datta, A**, Vanderplas, S, Cuellar, M and Thompson, WC (2023) Misuse of Statistical Method Results in Highly Biased Interpretation of Forensic Evidence in Guyll et al. *Law., Probability, and Risk* 23(1), mgad010.
- *33. ^ΔGilbert B, ^ΔFiksel J, Wilson E, Kalter H, Kante A, Akum A, Blau D, Bassat Q, Macicame I, Gudo E, Black R, Zeger S, Amouzou A, **Datta A** (2023) Multi-cause calibration of verbal autopsy-based cause-specific mortality estimates of children and neonates in Mozambique *American Journal of Tropical Medicine and Hygiene* 108.5 Suppl: 78.
32. Weber L, ^ΔSaha A, **Datta A**, Hansen K, Hicks S (2023) nnSVG: scalable identification of spatially variable genes using nearest-neighbor Gaussian processes *Nature Communications* 14.1: 4059.
31. Lin J, Buehler C, **Datta A**, Gentner D, Koehler K, Levy-Zamora M (2023) Laboratory and Field Evaluation of a Low-cost Methane Sensor and Key Environmental Factors for Sensor Calibration *Environmental Science: Atmospheres* 3.4: 683-694.
30. Ivalda M, Almamy K, Wilson E, ^ΔGilbert B, Nhachungue S, Monjane C, Adriano A, Chicumbe S, Jani, I, Kalter H, **Datta A**, Zeger S, Black R, Samo G, Amouzou A (2023) Countrywide Mortality Surveillance for Action – COMSA - in Mozambique: Results from a national sample vital registration system for mortality and cause of death *American Journal of Tropical Medicine and Hygiene* 108.5 Suppl: 5.
29. Seal S, **Datta A**, Basu S (2022) Efficient Estimation of SNP Heritability using Gaussian Predictive Process in Large scale Cohort Studies *PLOS Genetics*, 18(4): e1010151.
28. Patton AN, **Datta A**, Levy-Zamora M, Buehler C, Xiong F, Gentner D, Koehler K (2022) Non-linear probabilistic calibration of low-cost environmental air pollution sensor networks for neighborhood level spatiotemporal exposure assessment *Journal of Exposure Science and Environmental Epidemiology* 32.6: 908-916.
27. Zamora ML, Buehler C, Lei H, **Datta A**, Xiong F, Gentner D, Koehler, K (2022) Evaluating the performance of using low-cost sensors to calibrate for cross-sensitivities in a multipollutant network *Environmental Science and Technology Engineering* 2.5: 780-793.
26. Butler EE, Wythers KR, Flores-Moreno, H, Ricciuto DM, **Datta A**, Banerjee A, Atkin OK, Kattge J, Thornton PE, Madhur A, Burrascano S, Byun C, Cornelissen JHC, Forey E, Jansen S, Kramer K, Minden V, and Reich PB (2022) Increasing functional diversity in a global land surface model illustrates uncertainties related to parameter simplification *Journal of Geophysical Research - Biogeosciences* 127.3 (2022): e2021JG006606.
25. Butler EE, Wythers KR, Flores-Moreno, H, Chen M, **Datta A**, Ricciuto DE, Atkin OK, Kattge J, Thornton PM, Banerjee A, Reich PB (2021) Updated respiration routines alter spatio-temporal patterns of carbon cycling in a global land surface model *Environmental Research Letters* 16(10) p. 104015.
- *24. **Datta, A**, ^ΔSaha, A, Levy-Zamora, M, Buehler, Colby, Hao, L, Xiong, F, Gentner DR, Koehler K (2020) Statistical field calibration of a low-cost PM2.5 monitoring network in Baltimore *Atmospheric Environment* 242, 117761, ISSN 1352-2310

23. Flores-Moreno H, Fazayeli F, Banerjee A, **Datta A**, Kattge J, Butler EE, Atkin O, Wythers K, Chen M, Anand M, Bahn M, Burrascano S, Byun C, Cornelissen J, Craine J, Gonzalez-Melo A, Hattingh W, Jansen S, Kraft N, Kramer K, Laughlin D, Minden V, Niinemets U, Onipchenko V, Penuelas J, Soudzilovskaia N, Reich PB. (2019) Robustness of trait connections between multiple plant organs across environmental gradients, growth forms *Global Ecology and Biogeography* 28(12), 1806–1826
22. Edwards JK, Hileman S, Donastorg Y, Sanchez R, Zadrozny S, Baral SB, Hargreaves J, Fearon E, Zhao J, **Datta A**, Weir SS. (2018) Estimating sizes of key populations at the national level: considerations for study design, analysis *Epidemiology* 29(6): 795–803
- *21. [†] Butler EE, [†] **Datta A**. / ... 48 authors ... / Reich, PB. (2017) Mapping local and global variability in plant trait distributions *Proceedings of the National Academy of Sciences* 114(51): E10937–E10946
- Press coverage:
[From Alaska to Amazonia: first global maps of traits that drive vegetation growth](#)

Under Revision and Submitted

20. ^Δ Choi J, **Datta, A**, Lindquist MA Scalable and Adaptive Spatiotemporal Modeling for Task-Based fMRI Analysis *Major Revision invited at Journal of the American Statistical Association*
- *19. ^ΔJin B, Salmerón BD, McClosky D, Hagan DH, Dickerson RR, Spada NJ, Deanes LN, Aubourg MA, Schmidt LE, Sawtell GG, Heaney CD, **Datta A** Use of multi-pollutant air sensor data and geometric non-negative matrix factorization for source apportionment of air pollution burden in Curtis Bay, Baltimore, USA *Resubmission Invited: Environmental Science and Technology* [arXiv](#)
18. Zhao Y, **Datta A**, Tang B, Zipunnikov V, Caffo B Density-on-Density Regression *Resubmission invited: Electronic Journal of Statistics* [arXiv](#)
- *17. ^ΔSong J, ^ΔPramanik S, **Datta A** Neural variational inference for cutting feedback during uncertainty propagation [arXiv](#)
- ENAR 2026 Distinguished Student Paper Award for Jiafang Song
- *16. ^ΔBurman A, Ogburn E L, **Datta A** Robust Spatial Confounding Adjustment via Basis Voting [arXiv](#)
- ENAR 2026 Distinguished Student Paper Award for Anik Burman
- *15. ^ΔSaha A, **Datta A** Random forests for binary geospatial data [arXiv](#)
14. Pan, S, Yang J, Liu L, **Datta, A**, Chen YT, ... , McCormick TH, Rethinking Cause-of-Death Classification in the Era of Machine Learning and Large Language Models
13. Wilson E, Kalter H, **Datta A**, Pramanik S, Black R EAVA: An R package for Expert Algorithm Verbal Autopsy (EAVA) cause of death assignment
- *12. ^ΔJin B, **Datta A** Identification in source apportionment using geometry [arXiv](#)

11. Kowalski, G., Waugh, D., Buehler, C., Datta, A., Gentner, D., Koehler, K., Kondragunta, S., Miles, M., Zamora, M., Zhang, H. Spatial Variations of PM_{2.5} in Baltimore: Leveraging In-Situ and Satellite-Based Measurements
- *10. Pramanik, S., Wilson, E.B., Kalter, H.D., Amouzou, A., Black, R.E., Liu, L., Perin, J., **Datta, A.** VA-calibration: Correcting for Algorithmic Misclassification in Estimating Cause Distributions

PRACTICE ACTIVITIES

Open-access Public Health Dashboard

- *9. ^ΔJin B, Lei H, DeCarlo P, JHU Data Science and AI Institute, Koehler K, **Datta A** The Baltimore Air Quality Dashboard [Website](#)

Description: The Baltimore air quality dashboard is developed to offer some of the first spatially resolved maps and other analytics about air quality trends in Baltimore city. There is only one regulatory monitor for fine particulate matter (PM_{2.5}). The maps and figures are created based on outputs of statistical models using data from multiple sources – the Maryland Department of the Environment, the SEARCH low-cost sensor network, and PurpleAir low-cost sensor network. The dashboard currently offers both city-level and neighborhood-level maps and trends on PM_{2.5} data in Baltimore city from 2019 to 2024. In the future, near-real time air-quality maps and information on other pollutants will be added.

Published Open-access Software

- *8. ^ΔSong J, **Datta A** (2025) **spVarBayes** – Fast variational inference methods for spatial data [GitHub](#)

Description: spVarBayes is an R package for fast variational Bayesian inference in large-scale geospatial regression using Nearest Neighbor Gaussian Processes (NNGP). It avoids auto-differentiation by using closed-form gradient updates and linear response corrections, enabling accurate uncertainty quantification at reduced computational cost.

- *7. ^ΔZhan W, **Datta A** (2024) **GeospaNN** – A Python Package for Geospatial Neural Networks [PyPI](#)

Description: GeospaNN is a Python package for using neural networks for geospatial data. GeospaNN implements the NNGLS method of Zhan and Datta (2024, JASA) NNGLS is a graph neural network (GNN) for fast estimation and spatial prediction (kriging) from large geospatial datasets, by combining multi-layer perceptrons, Gaussian processes, and the generalized least squares (GLS) loss.

- *6. ^ΔSaha A, **Datta A** (2022) **BRISC** – R package for Fast Inference for Large Spatial Datasets [CRAN](#)

Downloads: 51,000+ CRAN downloads as of Apr, 2026

Description: BRISC is an R-package on CRAN for rapid estimation, prediction, bootstrap inference for and simulation of large spatial data in a frequentist setup using Nearest Neighbor Gaussian Processes (Datta et al, 2016, JASA) To our knowledge, BRISC is the only R-package that provides frequentist confidence intervals for all parameters including the spatial variance and range of Gaussian Process. Inference from BRISC is highly competitive with those obtained on Bayesian approaches relying on MCMC, while being manifold times faster.

5. Finley A, **Datta A**, Banerjee S (2022) **spNNGP** – Spatial Regression Models for Large Datasets using Nearest Neighbor Gaussian Processes

[CRAN](#)

Downloads: 40,000+ CRAN downloads as of Apr, 2026

Description: spNNGP is an R package on CRAN for scalable fully Bayesian analysis of massive spatial data using Nearest Neighbor Gaussian Processes (Datta et al, 2016, JASA) spNNGP enables fast fully Bayesian inference of all parameters and proper uncertainty quantified predictions at new locations. An MCMC-free hybrid Bayesian conjugate NNGP is also included which is super fast even for spatial datasets with millions of locations. The new version of spNNGP also has the option to run fast Bayesian spatial GLM for binary spatial data.

- *4. ^ΔFiksel J, **Datta A** (2021) **codalm**: Transformation-Free Linear Regression for Compositional Outcomes and Predictors [CRAN](#)

Downloads: 27000+ CRAN downloads as of Apr, 2026

Description: codalm is an R-package on CRAN for linear modeling of compositional data (coda) It implements a simple transformation-free regression of a compositional outcome on a compositional predictor using an M-estimation method. Estimates of the regression-coefficient matrix, bootstrap-based confidence intervals are provided. A permutation based test of linear association is also offered.

- *3. ^ΔSaha A, **Datta A** (2022) **RandomForestsGLS** – Random Forests for Dependent Data [CRAN](#)

Downloads: 26000+ CRAN downloads as of Apr, 2026

Description: RandomForestsGLS is an R-package for fitting non-linear regression models on dependent data (spatial and temporal) with Generalised Least Square (GLS) based Random Forests (RF-GLS) detailed in Saha, Basu and Datta (2020) For spatial data, 'RandomForestsGLS' combines the strengths of Random Forest and Gaussian Process to estimate and predict non-linear functions using nearest neighbor Gaussian Process. For time-series data, 'RandomForestsGLS' uses the AR (auto-regressive) process covariance structure with Random Forests for estimation.

- *2. ^ΔPramanik S, Wilson E, ^ΔGilbert B, ^ΔFiksel, J, **Datta A** (2025) **vacalibration**: Calibration of Computer-Coded Verbal Autopsy Algorithm [CRAN](#)

Downloads: 2400+ CRAN downloads as of Apr, 2026

Description: calibratedVA is an R-package on GitHub for calibration of national and sub-national cause specific mortality (CSMF) estimates produced by algorithms based on verbal autopsy data. calibratedVA also has an ensemble calibration option where outputs from multiple VA algorithms are used to produce a unified calibrated CSMF estimate. The package

can also be used in other general contexts to calibrate any discrete classifier (or a set of classifiers) based on limited local labeled data.

1. Wilson E, Kalter H, **Datta A**, Pramanik S, Black R (2025) **EAVA** – Expert algorithm for verbal autopsy [CRAN](#)

Downloads: 6400+ CRAN downloads as of Apr, 2026

Description: R-package implementing the Expert algorithm (Kalter et al. 2016) for cause of death determination using verbal autopsy records.

CURRICULUM VITAE
Abhirup Datta, MStat, PhD

Part II

TEACHING AND MENTORING

ACADEMIC ADVISEES

Post-doctoral fellows

24. Dr. Sandipan Pramanik (2022 -)

- (2026 Fall -) **Tenure-track Assistant Professor**, Department of Data Science, University of Mississippi
- (2025 -) NIH K99/R00 Pathway to Independence Award Fellow (Mentor: Datta)
- (2022 - 2025) Postdoc

23. Bora Jin (August, 2023 -)

- (2026 Fall -) **Tenure-track Assistant Professor**, Department of Applied Mathematics & Statistics, Colorado School of Mines

PhD Advisees

Graduated:

22. Fiksel, Jacob, Doctor of Philosophy, Biostatistics (2015 – 2020)

- Currently at Vertex Pharmaceuticals, Boston, MA

21. Saha, Arkajyoti, Doctor of Philosophy, Biostatistics (2016 – 2021, co-advised with Nilanjan Chatterjee)

- **Tenure-track Assistant Professor**, Department of Statistics, University of California, Irvine

20. Dey, Debanjan, Doctor of Philosophy, Biostatistics (2017 – 2022, co-advised with Vadim Zipunnikov)

- **Tenure-track Assistant Professor**, Department of Statistics, Texas A&M University

19. Gilbert, Brian, Doctor of Philosophy, Biostatistics (2019 – 2023, co-advised with Betsy Ogburn)

- Currently Mathematical Statistician at U.S. Food and Drug Administration

18. Heffernan, Claire, Doctor of Philosophy, Biostatistics (2019 – 2024)

- Currently at Merck
17. Zhan, Wentao, Doctor of Philosophy, Biostatistics (2020 – 2025, co-advised with Hongkai Ji)
 - Currently Postdoctoral Fellow at the Department of Statistics, University of Wisconsin-Madison
 16. Song, Jiafang, Doctor of Philosophy, Biostatistics (2021 – 2026 (scheduled))
 - Next position, Google, Mountain View, CA

Current:

15. Anik Burman, Doctor of Philosophy, Biostatistics (2022 – present)
14. Jungin Choi, Doctor of Philosophy, Biostatistics (2022 – present, co-advised with Martin Lindquist)
13. Shengtao Wang, Doctor of Philosophy, Biostatistics (2023 – present, co-advised with Martin Lindquist)
12. Nowell Phelps, Doctor of Philosophy, Biostatistics (2024 – present)

ScM Advisees

11. Lin, Yi-Ting, Master of Science, Biostatistics (2022 – 2023)
 - Currently PhD student at Department of Biostatistics, University of Michigan
10. Xiang, Chen, Master of Science, Biostatistics (2020 – 2021)
 - Currently PhD student at Department of Biostatistics, University of California Los Angeles
9. Pita, Andrew, Master of Science, Biostatistics (2017 – 2019)

JHU Diversity Summer Internship Program (DSIP) Mentorship

Mentor for summer internship projects for undergraduate students from under-represented groups.

8. Hall, Byron, Intern (Summer 2024)
7. Thomas, Bella, Intern (Summer 2023)
6. Griffin, Karen, Intern (Summer 2022)

Other Mentored Students

5. Dr. Bohao Tang (PhD, 2023, Biostatistics, Secondary advisor, with advisor: Brian Caffo)
4. Dr. Guoqing Wang (PhD, 2022, Biostatistics, Secondary advisor, with advisor: Martin Lindquist)
3. Wenyi Lin (ScM, 2017, Biostatistics, Secondary advisor, with advisor: Scott Zeger)
2. Kuo, Albert. Doctor of Philosophy, Biostatistics (2017 – 2019, First year academic advisor)
1. Fu, Martina. Doctor of Philosophy, Biostatistics (2019, First year academic advisor)

Thesis Committees / Thesis Reader

- Yi-Ting, Lin, Master of Science, Biostatistics (2023)
- Sindy, Du, Master of Science, Biostatistics (2022)
- Xiang, Chen, Master of Science, Biostatistics (2021)
- Pita, Andrew, Master of Science, Biostatistics (2019)

Preliminary Oral Participation

- Liu, Wei. Doctor of Philosophy, Epidemiology (2026)
- Salvatore, Milletich. Doctor of Philosophy, Environmental Health and Engineering (2026)
- Zach, Smith. Doctor of Philosophy, Environmental Health and Engineering (2025)
- Anik, Burman. Doctor of Philosophy, Biostatistics (2025)
- Choi, Jungin. Doctor of Philosophy, Biostatistics (2025)
- Song, Jiafang. Doctor of Philosophy, Biostatistics (2024)
- Zhan, Wentao. Doctor of Philosophy, Biostatistics (2023)
- Hines, Ryan. Doctor of Philosophy, Environmental Health and Engineering (2023)
- Shah, Kinnari. Doctor of Philosophy, Biostatistics (2023)
- Heffernan, Claire. Doctor of Philosophy, Biostatistics (2022)
- Gilbert, Brian. Doctor of Philosophy, Biostatistics (2021)
- Wang, Guoqing. Doctor of Philosophy, Biostatistics (2020)
- Dey, Debang. Doctor of Philosophy, Biostatistics (2020)
- Saha, Arkajyoti. Doctor of Philosophy, Biostatistics (2019)
- Windle, Michael. Doctor of Philosophy, Epidemiology (2019)
- Kim, Ji Soo. Doctor of Philosophy, Biostatistics (2019)

Final Oral Participation

- Heffernan, Claire. Doctor of Philosophy, Biostatistics (2024)
- Gilbert, Brian. Doctor of Philosophy, Biostatistics (2023)
- Tang, Bohao. Doctor of Philosophy, Biostatistics (2022)
- Wang, Guoqing. Doctor of Philosophy, Biostatistics (2022)
- Dey, Debang. Doctor of Philosophy, Biostatistics (2022)
- Saha, Arkajyoti. Doctor of Philosophy, Biostatistics (2021)
- Kim, Ji Soo. Doctor of Philosophy, Biostatistics (2020)
- Fiksel, Jacob, Doctor of Philosophy, Biostatistics (2020)
- Wang, Craig. Doctor of Philosophy, University of Zurich, Department of Mathematics and Department of Computational Science (2019)
- Lee, Youjin, Doctor of Philosophy, Biostatistics (2019)
- Colston, Josh, Doctor of Philosophy, International Health (2018)

Classroom Instruction - Principal Instructor (JHSPH)

- 2026 (scheduled): 140.760 Introduction to Geostatistics: Biostatistics Summer School
- 2026: 140.724 Probability Theory III (3rd term)
- 2025: 140.650.01 AI Methods for Geospatial Data¹ (4th term)
- 2025: 140.724 Probability Theory III (3rd term)
- 2023: 140.724 Probability Theory III (3rd term)
- 2023: 140.724 Probability Theory IV (4th term)
- 2022: 140.724 Probability Theory IV (4th term)
- 2021: 140.724 Probability Theory IV (4th term)
- 2020: 140.724 Probability Theory IV (4th term)
- 2019: 140.724 Probability Theory IV (4th term)
- 2018: 140.724 Probability Theory IV (4th term)
- 2021: 140.850 Advanced Spatial Statistics (3rd term)
- 2019: Biostatistics PhD seminar (3rd term)
- 2018: 140.850 Advanced spatial statistics (3rd term)
- 2017: 140.850 Scalable methods for large spatial data (4th term)

Invited Short Courses

- Invited short course on Machine learning for geospatial regression, ASA ENVR 2026 Conference, Houston, Texas (Oct 2026, scheduled)
- Invited short course on Machine learning for geospatial regression, Joint Statistical Meetings, Boston, MA (Aug 2026, scheduled)
- Invited short course on Statistical and machine learning for spatial data, geoMed 2026, Pamplona, Spain (Jun 2026, scheduled)
- Invited short course on Statistical and machine learning for spatial data, International Biometric Conference (IBC), Atlanta, GA (Dec 2024)
- Full day invited short course on Bayesian models for high dimensional spatial data, Joint Statistical Meetings, Baltimore, MD (2017)

Classroom Instruction - Invited Guest Lecturer (JHSPH)

- 140.860.01 Current Topics in Biostatistics (2025)
- 140.860.01 Current Topics in Biostatistics (2022)
- 140.860.01 Current Topics in Biostatistics (2021)
- 140.651.01 Methods in Biostatistics I (2019)
- 340.680.01 Environmental and Occupational Epidemiology (2018)

¹New course designed by Dr. Datta

Teaching Assistant

Division of Biostatistics, University of Minnesota

- Advanced Statistical Inference, Instructors: Dr. Cavan Reilly and Dr. David Vock, Spring 2015
- Probability Models for Biostatistics, Instructor: Dr. Baolin Wu, Fall 2014
- Bayes Decision Theory and Data Analysis, Instructor: Dr. Sudipto Banerjee, Spring 2014
- Advanced Statistical Inference, Instructors: Dr. Julian Wolfson and Dr. David Vock, Spring 2014
- Probability Models for Biostatistics, Instructor: Dr. Baolin Wu, Fall 2013
- Advanced Regression, Instructor: John Hughes, Ph.D, Spring 2012
- Statistical Methods for Correlated Data, Instructor: Dr. Julian Wolfson, Fall 2012

RESEARCH GRANT PARTICIPATION

Research grant awards as Principal or Co-principal investigator

- **Correcting for bias and uncertainty in AI algorithmic outputs used in global child mortality estimates**
Institute for Data Intensive Engineering and Science, Johns Hopkins University
Dates: June 2025 to May 2026.
Principal Investigators: Abhirup Datta.
Award amount: \$25,000.00
Responsibility: Principal Investigator.
- **Geospatial AI driven air-quality dashboard for Baltimore**
Data Science and AI Institute, Johns Hopkins University
Dates: July 2024 to June 2026.
Principal Investigators: Abhirup Datta.
Award amount: \$200,000.00
Responsibility: Principal Investigator.
- **NIEHS R01: Statistical methods for air-pollution studies using low-cost monitors**
The National Institute of Environmental Health Sciences (NIEHS) R01ES033739
Dates: February 2022 to November 2026.
Principal Investigators: Abhirup Datta.
Award amount: \$1,326,376.00
Responsibility: Principal Investigator.
- **NIBIB R01: Individualized spatial topology in functional neuroimaging**
National Institute Of Biomedical Imaging And Bioengineering (NIBIB) R01EB026549
Dates: April 2024 to March 2028.
Multiple Principal Investigators (M-PI): Abhirup Datta, Martin Lindquist (PI), Tor Wager
Award amount: \$ 2,196,809.00
Responsibility: Multiple Principal Investigator (M-PI) .
- **Broadening the applicability of minimally-invasive-tissue-sampling (MITS)-based verbal autopsy (VA) calibration to improve global mortality estimates**
Bill & Melinda Gates Foundation
Dates: December 2021 to April 2025.
Principal Investigators: Abhirup Datta.
Award amount: \$1,099,940.00
Responsibility: Principal Investigator.
- **NSF-DMS award: Highly multivariate geo-statistics using graphical models**
National Science Foundation Division of Mathematical Sciences (NSF-DMS) award DMS-1915803
Dates: July 2019 to June 2023.
Principal Investigators: Abhirup Datta.
Award amount: \$180,000
Responsibility: Principal Investigator.
- **Air Pollution and COPD Hospitalizations in Baltimore in the Context of COVID-19**
Alliance for a Healthier World COVID-19 Launchpad Grant

Dates: June 2020 to May 2021.

Principal Investigators: Kirsten Koehler and Abhirup Datta.

Responsibility: Co-Principal Investigator.

- **NIDA R21: Improved Heritability Estimation by Spatial Mapping of Genetic Relationships**
National Institute on Drug Abuse (NIDA) R21DA046188
Dates: July 2018 to Jun 2020.
Principal Investigator: Saonli Basu.
Responsibility: Principal investigator on sub-contract.
- **Statistical Maps of Air Quality in Baltimore City Using Low-Cost Monitoring Data**
Bloomberg American Health Initiative Spark Award, Johns Hopkins University
Dates: July 2018 to June 2019.
Principal Investigators: Abhirup Datta and Kirsten Koehler.
Award amount: \$71,000
Responsibility: Principal Investigator.

Other Research Support

- Leveraging Data Science and AI to Improve National Mortality Surveillance in Mozambique
Data Science and AI Institute, Johns Hopkins University
Dates: July 2024 to June 2026.
Principal Investigators: Agbessi Amouzou.
Responsibility: Co-Investigator.
- SRS Implementation Support and Capacity Building in LMIC
Bill and Melinda Gates Foundation
Dates: July 2024 to June 2026.
Principal Investigators: Agbessi Amouzou.
Responsibility: Co-Investigator.
- *Study of HIV Infection in the Etiology of Lung Disease (SHIELD) (NHLBI R01)*
Dates: Jul 2022 to Mar 2026.
Principal Investigator: Meredith McCormack.
Responsibility: Co-investigator.
- *Newborn, Child, and Adolescent Epidemiology Estimation (NCAEE) (Bill & Melinda Gates Foundation)*
Dates: Apr 2022 to Mar 2025.
Principal Investigator: Li Liu.
Responsibility: Co-investigator.
- *Center for Community Health: Addressing Regional Maryland Environmental Determinants of Disease (NIEHS P30)*
Dates: Aug 2020 to Jul 2025.
Principal Investigator: Marsha Wills-Karp.
Responsibility: Co-investigator.
- *Cholera Burden and Transmission Modeling II (Bill & Melinda Gates Foundation)*
Dates: Nov 2022 to Sep 2025.

Principal Investigator: Justin Lessler/Andrew Azman.
Responsibility: Co-investigator.

- *Personalized spatiotemporal hemodynamic response models for functional magnetic resonance imaging (NIH R01)*
Dates: Sep 2022 to Aug 2027.
Principal Investigator: Martin Lindquist.
Responsibility: Co-investigator.
- *Comprehensive Mortality Surveillance for Action (COMSA)- Mozambique (Bill & Melinda Gates Foundation)*
Dates: Jan 2017 to Dec 2023.
Principal Investigator: Agbessi Amouzou.
Responsibility: Co-investigator.
- *Cholera Burden and Transmission Modeling (Bill & Melinda Gates Foundation)*
Dates: Sep 2019 to Jul 2023.
Principal Investigator: Justin Lessler.
Responsibility: Co-investigator.
- *Individualized spatial topology in functional neuroimaging (NIBIB R01)*
Dates: July 2018 to Mar 2022.
Principal Investigator: Martin Lindquist.
Responsibility: Co-investigator.
- *The SEARCH Center: Solutions for Energy, AiR, Climate, and Health (Environmental Protection Agency)*
Dates: Sep 2020 to Aug 2021.
Principal Investigator: Kirsten Koehler and Drew Gentner.
Responsibility: Co-investigator.
- *Project SOAR – Supporting Operational AIDS Research (USAID SH142)*
Dates: Oct 2016 to Mar 2019.
Principal Investigator: Deanna Kerrigan.
Responsibility: Statistical Consultant.

ACADEMIC SERVICE

Johns Hopkins Bloomberg School of Public Health

- 2025 – BSPH PhD Program Task Force
- 2021 – 2023: Elected member of the Faculty Senate
- 2022 – 2024: Faculty Mentor for JHU Diversity Summer Internship Program

Department of Biostatistics, Johns Hopkins University

- 2025 – 2026: Co-chair, Faculty Search Committee
- 2021 – present: Member, Honors and Awards Committee
- 2018 – present: Member, Biostatistics PhD Entrance Assessment Committee
- 2019 - present: Member, Graduate students admissions Committee
- 2018 – present: Member, Biostatistics PhD Comprehensive Exam Committee
- 2018 – 2022: Organizer, Departmental Spatial Statistics Journal Club
- 2018 – 2019: Member, Curriculum committee, Biostatistics Retreat
- 2016 – 2018: Co-leader, Spatial Statistics and Small area estimation (SAESS) working group
- 2017: Faculty Recruitment Committee
- 2017: Organizer, Biostatistics Departmental Seminars

Writing External Letters of support for New Appointment, Promotion, or Tenure

George Mason University
University of California Santa-Cruz
Iowa State University
University of Texas Houston
King Abdullah University of Science and Technology (KAUST)

Scientific Communication

PLENARY, KEYNOTE AND SPECIAL LECTURES

92. Feb 2026, Keynote Lecture, Environmental Statistics Symposium, University of Michigan, Ann Arbor
91. June 2025 Plenary Lecture, METMA-LATAM Conference on Spatio-Temporal Modeling, Barranquilla, Colombia
90. Feb 2025 Bromery Series Seminar, Department of Earth and Planetary Sciences, Johns Hopkins University
89. July 2023 Plenary Lecture, The International Environmetrics Society Meeting, Peterborough, Canada

INVITED PANELS

88. July 2025: Panelist at Applications of AI to HIV, Johns Hopkins Bloomberg School of Public Health
87. July 2024: Panelist at Grants360 Discussion of funding from the National Science Foundation (NSF), Johns Hopkins Bloomberg School of Public Health
86. May 2024: Panelist at Conference on Evaluating the Science of Geospatial AI, Harvard University
85. Oct 2023: Panelist in *“Bridging the Gap: Exploring the Role of AI in the Climate and Health Intersection”*, Johns Hopkins India Institute, Washington DC
84. Aug 2023: Panelist in American Statistical Association Graduate Student Mentoring Session at the Joint Statistical Meetings 2023, Toronto, CA
83. 2020: Panelist in Faculty workshop on Mentoring PhD students, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD

INVITED PRESENTATIONS

82. Aug 2026 (scheduled) Joint Statistical Meetings, 2025, Boston, MA
81. Jun 2026 (scheduled) International Society for Bayesian Analysis, 2026, Nagoya, Japan
80. Dec 2025 Interdisciplinary Statistical Research Unit, Indian Statistical Institute, Kolkata, India.
79. Oct 2025 Department of Biostatistics, University of Minnesota, Minneapolis, MN
78. Oct 2025 Department of Statistics, STAB working group, University of Washington (virtual)
77. Oct 2025 Department of Statistics, Iowa State University, Ames, IA
76. Aug 2025 Joint Statistical Meetings, 2025, Nashville, TN

75. April 2025 Department of Statistics, University of Florida
74. March 2025 Eastern North American Region Meetings (ENAR), International Biometric Society, New Orleans, LA
73. Feb 2025, Department of Statistics, University of Iowa
72. Nov 2024 RAND Statistics Seminar, RAND Corporation
71. Oct 2024 Department of Statistics, Rutgers University
70. Aug 2024 Joint Statistical Meetings, Portland, Oregon
69. Nov 2023 The International Environmetrics Society Webinar Series on Interdisciplinary applications of statistics and Machine Learning for environmental applications
68. Nov 2023 Department of Statistics, Federal University of Minas Gerais (UFMG), Sao Paulo, Brazil
67. Oct 2023 Child and Adolescent Cause of Death Estimation Meeting, World Health Organization, Geneva, Switzerland
66. Oct 2023 Department of Biostatistics, Yale University, New Haven, CT
65. Oct 2023 Department of Statistics, Cornell University, Ithaca, NY
64. Oct 2023 MITS Surveillance Alliance Annual Meeting, Nairobi, Kenya
63. Sep 2023 EnviBayes workshop, Fort Collins CO
62. Sep 2023 Department of Biostatistics, University of Utah, Salt Lake City, UT
61. Sep 2023 Department of Statistics, Brigham Young University, Provo, UT
60. Sep 2023 Department of Statistics, Virginia Tech University, Blacksburg, VA
59. Jul 2023 EcoSTAT Conference, Tokyo, Japan (virtual)
58. Jun 2023, International Chinese Statistical Association Conference, Ann Arbor, MI
57. Jun 2023 SIAM Conference on Optimization, Seattle, WA
56. Jun 2023 The Bill and Melinda Gates Foundation, Seattle, WA
55. May 2023 Center for Statistics and the Social Sciences, University of Washington, Seattle, WA
54. May 2023, Statistics, Computer Science, and Mathematics Department, The Public University of Navarre, Pamplona, Spain
53. May 2023, BIRS workshop on Machine Learning and Spatial Extremes, Granada, Spain
52. Dec 2022 International Indian Statistical Association Conference, Bengaluru, India.
51. Dec 2022, CMStat conference, Kings' College, London, UK
50. Oct 2022, Data Science Conference, Texas A&M University, College Station, TX

49. Oct 2022, Southern Regional Council on Statistics (SRCOS) Conference, Jekyll Island, GA
48. Sep 2022, Department of Population, Family and Reproductive Health, Johns Hopkins University, Baltimore, MD
47. Aug 2022, Statistical Data Science Workshop, University of Bologna, Italy
46. Aug 2022 Joint Statistical Meetings, Washington DC.
45. Jul 2022, International Biometrics Conference (IBC2022)
44. May 2022 North-Eastern Statistics Symposium (NESS) (virtual)
43. Mar 2022 Eastern North American Region Meetings (ENAR), International Biometric Society, Houston, TX
42. Feb 2022, Department of Biostatistics, McGill University, Montreal, CA
41. Nov 2021 East Asia Chapter of the International Society for Bayesian Analysis (EAC ISBA) (virtual)
40. Oct 2021, Department of Statistics, Purdue University, West Lafayette, IN
39. Sep 2021, Department of Biostatistics, University of Minnesota, Twin Cities
38. Aug 2021 Joint Statistical Meetings, Seattle, WA
37. May 2021 Center for Disease Control and Prevention (CDC) Division of Global HIV and TB's Key Population Surveillance Team (virtual)
36. Apr 2021 IHME-CHAMPS Convening (virtual)
35. Apr 2021 Department of Biostatistics, NYU School of Global Public Health, New York City, NY
34. Apr 2021 MCEE Cause of Death (COD) Misclassification Methods Meeting (virtual)
33. Mar 2021 SIAM Conference on Computational Science and Engineering (virtual)
32. Oct 2020, Department of Statistics, Iowa State University, Ames, IA
31. Oct 2020, Department of Biostatistics, Virginia Commonwealth University, Richmond, VA
30. Sep 2020, RTI International, Raleigh, NC
29. Sep 2020 MITS Surveillance Alliance Meeting (virtual)
28. Aug 2020 Joint Statistical Meetings (virtual)
27. Mar 2020 Eastern North American Region Meetings (ENAR), International Biometric Society (virtual)
26. Dec 2020 International Indian Statistical Association Conference, Mumbai, India.
25. Sept 2019, Department of Statistics, Penn State University, State College, PA

24. Aug 2019 International Statistical Institute World Congress, Kuala Lumpur, Malaysia.
23. Aug 2019 Joint Statistical Meetings, Denver, CO.
22. May 2019, LRI Causes and Etiologies Meeting, Baltimore, MD.
21. # Mar 2019 SEARCH Scientific Advisory Committee meeting, Yale University, New Haven, CT.
20. Mar 2019, Child Health and Mortality Prevention Surveillance (CHAMPS) program, Emory University, Atlanta, GA.
19. Feb 2019, Department of Biostatistics, UCLA, Los Angeles, CA
18. Jan 2019 Interdisciplinary Statistical Research Unit, Indian Statistical Institute, Kolkata, India.
17. Aug 2018 Joint Statistical Meetings, Vancouver, Canada.
16. Jun 2018 ISBA World Meeting, Edinburgh, UK.
15. Jun 2018, MITS Surveillance Alliance Inaugural Meeting, Barcelona, Spain
14. Mar 2018 Eastern North American Region Meetings (ENAR), International Biometric Society, Atlanta, GA.
13. Dec 2017 International Indian Statistical Association Conference, Hyderabad, India.
12. Dec 2017 10th International Conference of the ERCIM WG on Computational and Methodological Statistics, London, UK.
11. Nov 2017 American Public Health Association Annual Meeting, Atlanta, GA.
10. Oct 2017 UNAIDS Reference Group Fall Meeting 16-18 October 2017, London, UK.
9. Feb 2017 CDC Consultation Conference on Key Populations, CDC, Atlanta, GA.
8. Feb 2017 Department of Mathematics and Statistics, University of Maryland, Baltimore County, MD.
7. Nov 2016 President's Emergency Plan for AIDS Relief, Washington DC.
6. Feb 2016 Department of Statistical Science, Duke University, Durham, NC.
5. Feb 2016 Department of Biostatistics, University of Michigan, Ann Arbor, MI.
4. Feb 2016 Department of Biostatistics, Johns Hopkins University, Baltimore, MD.
3. Feb 2016 Department of Statistics, University of California, Irvine, CA.
2. Feb 2016 Department of Biostatistics, University of North Carolina, Chapel Hill, NC.
1. Dec 2016 Platinum Jubilee International Conference on Applications of Statistics, Calcutta University, Kolkata, India.