Abhirup Datta

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Academic Appointments

2016–Prsent   Assistant Professor, *Department of Biostatistics*, Johns Hopkins Bloomberg School of Public Health.

Education

2012–2016   Ph.D., Biostatistics, *University of Minnesota*, Minneapolis.
Advisers: Dr. Sudipto Banerjee and Dr. Hui Zou

2008–2010   M.Stat., *Indian Statistical Institute*, Kolkata, India.
Specialization in Math-Stat-Probability

2005–2008   B.Stat., *Indian Statistical Institute*, Kolkata, India.

Research Interests

Spatial and spatio-temporal data, High dimensional data, Bayesian statistics, Small Area Estimation, Applications to environmental and ecological data

Peer Reviewed Papers

* indicates equal contributions

1. **Datta, A.** and Zou, H. 2017 *CoCoLasso for High-dimensional Error-in-variables Regression* Annals of Statistics (In Press) [ArXiV]

2. **Datta, A.**, Banerjee, S., Finley, A.O., Hamm, N.A.S. and 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, vol. 10, no. 3, pp. 128-1316, 2016.

3. **Datta, A.**, Banerjee, S., Finley, A.O. and Gelfand, A.E. (2016) *On nearest-neighbor Gaussian process models for massive spatial data*, Wiley Interdisciplinary Reviews: Computational Statistics, vol. 8, no. 5, pp. 162-171, 2016.

4. **Datta, A.**, Banerjee, S., Finley, A.O. and Gelfand, A.E. (2016) *Hierarchical Nearest Neighbor Gaussian Process models for Large Geostatistical Datasets*, Journal of the American Statistical Association, vol. 111, no. 514, pp. 800-812, 2016.

Submitted Papers

5. **Datta, A.**, Zou, H. and Banerjee, S. (Submitted) *Bayesian Inference for High-dimensional Changing Linear Regression with Application to Minnesota House Price Index Data* [ArXiV]

6. Butler, E.E.*, **Datta, A.*** et al. (Submitted) *Mapping Global Leaf Trait Distributions*

7. Flores-Moreno, H., Fazayeli, F., Banerjee, A., **Datta, A.**, Kattge, J., Butler, E., 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. and Reich, P. (Submitted) *Robustness of trait connections between multiple plant organs across environmental gradients and growth forms*

8. Finley, A.O., **Datta, A.**, Cook, B.C. , Morton, D.C., Andersen, H.E. and Banerjee, S. (Submitted) *Applying Nearest Neighbor Gaussian Processes to Massive Spatial Data Sets: Forest Canopy Height Prediction Across Tanana Valley Alaska* [ArXiV]

9. **Datta, A.**, Banerjee, S. and Hodges, J. S. (Submitted) *Spatial disease mapping using Directed Acyclic Graph Auto-Regressive (DAGAR) models* [ArXiV]

Working Papers

10. **Datta, A.**, Lin, W., Rao, A., Bao, L., Louis, T.A., Baral, S.D. *Bayesian estimation of MSM population size in Cote d'Ivoire*

11. **Datta, A.**, Bose, J., Rao, A., Baral, S.D., Louis, T.A. *Extrapolation of linear regression using kriging*

12. Heaton, M.J., **Datta, A.**, Finley, A.O., Furrer, R., Guhaniyogi, R., Gerber, F., Hammerling, D. *A Friendly Competition Among Methods for Analyzing Large Spatial Data*

13. Zhang, L., **Datta, A.**, Banerjee, S. *Practical Bayesian Inference for Massive Spatial Data On Modest Computing Environments*

Software

R-package *spNNGP: Spatial Regression Models for Large Datasets using Nearest Neighbor Gaussian Processes*, Finley A.O., **Datta, A.**, Banerjee, S. (2017), R package version 0.1.0..
https://CRAN.R-project.org/package=spNNGP

Funding

Oct 2016 to Sept 2018 Project SOAR (Supporting Operational AIDS Research), *USAID SH1420 (PI: Deanna Kerrigan)*, Statistical Consultant, 15% effort.

Jan 2017 to Dec 2019	Comprehensive Mortality Surveillance for Action (COMSA), *Bill & Melinda Gates Foundation (PI: Agbessi Amouzou)*, CoI, 20% effort.

Awards

2017	ASA Outstanding Statistical Application Award, *American Statistical Association*.
2016	ENAR Distinguished Student Paper Award, *International Biometric Society*, Austin, TX.
2016	Delta Omega Honorary Society Student Inductee (Pi Chapter), Minneapolis, MN.
2016	Best Student Seminar Presentation Award, *Division of Biostatistics*, University of Minnesota, Minneapolis, MN.
2015	Inter-disciplinary Doctoral Fellowship 2015-16, *Division of Biostatistics*, University of Minnesota Graduate School, 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	Outstanding Teaching Assistant Award, *Division of Biostatistics, University of Minnesota*, Minneapolis, MN.
2014	Best Paper Award, *Division of Biostatistics, University of Minnesota*, Minneapolis, MN.

Conference Travel Awards

2015	G70 Conference, *Duke University*, Durham, NC.
2014	ISBA World Meeting, *International Society for Bayesian Analysis*, Cancun, Mexico.
2014	Conference on Non-parametric Statistics for Big Data and Celebration to Honor Professor Grace Wahba, *University of Wisconsin*, Madison, WI.
2014	Pan-American Advanced Study Institute on Spatio-Temporal Statistics, *Travel grant from National Science Foundation*, Buzios, Brazil.

Invited Presentations

Dec 2017	International Indian Statistical Association Conference, *Hyderabad, India*.
Dec 2017	10th International Conference of the ERCIM WG on Computational and Methodological Statistics, *London, UK*.
Nov 2017	American Public Health Association Annual Meeting, *Atlanta, GA*.
Feb 2017	Department of Mathematics and Statistics, University of Maryland , *Baltimore County, MD*.
Feb 2017	CDC Consultation Conference on Key Populations, CDC, *Atlanta, GA*.

Dec 2016   Platinum Jubilee International Conference on Applications of Statistics, Calcutta University, *Kolkata, India*.
Nov 2016   President's Emergency Plan for Aids Relief, *Washington DC*.
Feb 2016   Department of Statistical Science, Duke University, *Durham, NC*.
Feb 2016   Department of Biostatistics, University of Michigan, *Ann Arbor, MI*.
Feb 2016   Department of Biostatistics, Johns Hopkins University, *Baltimore, MD*.
Feb 2016   Department of Statistics, University of California, *Irvine, CA*.
Feb 2016   Department of Biostatistics, University of North Carolina, *Chapel Hill, NC*.
Jan 2016   Division of Biostatistics Student Seminar, University of Minnesota, *Minneapolis, MN*.
Dec 2015   International Indian Statistical Association Conference, *Pune, India*.
Aug 2010   Mahalanobis International Symposium on Statistics, *Kolkata, India*.

Contributed Presentations

July 2017   IMS New Researcher's Conference, *Baltimore, MD*.
July 2017   Spatial Statistics Conference, *Lancaster, UK*.
Aug 2016   Joint Statistical Meetings, *Chicago, IL*.
Mar 2016   Eastern North American Region Meetings (ENAR), International Biometric Society, *Austin, TX*.
Dec 2015   2015 Dow Sustainability Innovation Student Challenge Award (SISCA), *Minneapolis, MN*.
Mar 2015   Eastern North American Region Meetings (ENAR), International Biometric Society, *Miami, FL*.
Aug 2014   Joint Statistical Meetings, *Boston, MA*.
Jun 2014   Pan-American Advanced Study Institute on Spatio-Temporal Statistics, *Buzios, Brazil*.
Mar 2014   Eastern North American Region Meetings (ENAR), International Biometric Society, *Baltimore, MD*.

Poster Presentations

Apr 2015   G70: A Celebration of Alan Gelfand's 70th Birthday, *Durham, NC*.
Apr 2015   University of Minnesota School of Public Health Annual Research Day, *Minneapolis, MN*.
Jul 2014   ISBA World Meeting, *Cancun, Mexico*.
Jun 2014   Conference on Nonparametric Statistics for Big Data and Celebration to Honor Professor Grace Wahba, *Madison, WI*.
Apr 2014   University of Minnesota School of Public Health Annual Research Day, *Minneapolis, MN*.
Oct 2013   University of Minnesota U-Spatial Symposium, *Minneapolis, MN*.

Other Presentations at Hopkins

Apr 2017	Spatial disease mapping using Directed Acyclic Graph Autoregressive (DAGAR) models, *Small Area Estimation and Spatial Statistics Working Group*.
Mar 2017	Spatial Analysis with Big and Small Data, *Department of Biostatistics*.
Dec 2016	Large Scale Spatio-temporal Interpolation of Environmental Pollutants, *Department of Biostatistics*.
Nov 2016	Approaches to population size estimation for key populations, *Small Area Estimation and Spatial Statistics Working Group*.
Sept 2016	Bayesian Models for High Dimensional Spatial Data, *Department of Biostatistics*.
Sept 2016	Bayesian Models for High Dimensional Spatial Data, *Small Area Estimation and Spatial Statistics Working Group*.

Teaching Experience

Short Course

July 2017	Full day short course on Bayesian models for high dimensional spatial data, *Joint Statistical Meetings*, Baltimore, MD, Course webpage.

At Hopkins

Spring 2017	Special topics: Scalable methods for large spatial data, Github page.

Teaching Assistant, Division of Biostatistics, University of Minnesota

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

Other Research Experience

2015–2016	Inter-disciplinary Doctoral Dissertation Fellow, *Institute on the Environment, University of Minnesota*, Minneapolis, MN. *Mentor*: Dr. Arindam Banerjee

2012-2015	Research Assistant, *Division of Biostatistics, University of Minnesota*, Minneapolis, MN. *Supervisor*: Dr. Sudipto Banerjee
Summers of 2015 & 2014	Research Consultant, *Geospatial Lab, Michigan State University*. *Supervisor*: Dr. Andrew O. Finley
Summer 2007	Visiting Student Research Program (Mathematics), *Tata Institute of Fundamental Research*, Mumbai, India.

Work Experience

2011–2012	Quantitative Analyst, *Morgan Stanley*, New York, NY.
2010–2011	Quantitative Analyst, *Morgan Stanley*, Mumbai, India.
Summer 2009	Quantitative Analyst Intern, *Morgan Stanley*, Mumbai, India.
Summer 2008	Analytics Intern, *SYSTAT Software Asia Pacific Ltd*, Bangalore, India.

Professional Activities

Reviewer for	*Advances in Statistical Climatology, Meteorology and Oceanography* *Annals of Applied Statistics* *Biometrics* *Environmetrics* *Journal of the American Statistical Association* (JASA) *Journal of Computation and Graphical Statistics* (JCGS) *Journal of the Royal Statistical Society Series C* (JRSSC) *Spatial Statistics* *Statistics in Medicine* *Transactions on Pattern Analysis and Machine Intelligence*
Session Chair	*Joint Statistical Meetings, 2014, Boston, MA*

Professional Memberships

American Statistical Association
Eastern North American Region International Biometric Society