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Education

2010 **Ph.D., Statistics,**
Dept. of Statistics, Texas A&M University
Major advisor: Dr. Soumendra N. Lahiri
Thesis: On Parametric and Nonparametric Methods for Dependent Data

2005 **M. Stat., Statistics,**
Indian Statistical Institute, New Delhi, India
Specialization: Advanced Probability

2003 **B. Sc. (Honors), Statistics,**
St. Xavier's College, Calcutta, India

Professional Experience

1. Assistant Professor, Department of Mathematics, Lehigh University, August 2010 - present.
2. Visiting Scientist, Computational and Information Systems Laboratory (CISL), National Center for Atmospheric Research (NCAR), July 2011 - August 2011, July 2012 - August 2012, July 2013, July 2014.

Publications

(§ denotes an undergraduate student, * denotes a graduate student)

Articles in Refereed Journals

1. **Bandyopadhyay, S.** and Lahiri, S. N. (2010), Resampling-based Bias-corrected Time Series Prediction. **Journal of Statistical Planning and Inference**. Solicited paper for a special volume honoring Prof. Emanuel Parzen on his 80th birthday, 140(12), 3775-3788.
2. **Bandyopadhyay, S.** and Lahiri, S. N. (2010), Asymptotic Properties of Discrete Fourier Transforms for Spatial Data. **Sankhya, Series A**, 71-A (2), 221-259.
3. **Bandyopadhyay, S.** and Maity, A. (2011), Analysis of Sabine River Flow Data Using Semiparametric Spline Modeling. **Journal of Hydrology**, 399 (3-4), 274-280.
4. Chen, B. Y., and **Bandyopadhyay, S.** (2012), A Regionalizable Statistical Model of Intersecting Regions in Protein-Ligand Binding Cavities. Invited to **Journal of Bioinformatics and Computational Biology**, 10, 1242004, doi: 10.1142/S0219720012420048.
5. **Bandyopadhyay, S.** (2012), A Note on Efficient Density Estimators of Convolutions. **Journal of Statistical Planning and Inference**, 142 (11), 3056-3060.
6. Chen, B. Y., and **Bandyopadhyay, S.** (2012), Modeling Regionalized Volumetric Differences in Protein-Ligand Binding Cavities. Invited to **Proteome Science**, 10, doi:10.1186/14 77-5956-10-S1-S6.
7. Nychka, D., **Bandyopadhyay, S.**, Hammerling, D., Lindgren, F., and Sain, S. (2015), A Multiresolution Gaussian Process model for the Analysis of Large Spatial Data Sets. **Journal of Computational and Graphical Statistics**, 24(2), 579-599.

8. **Bandyopadhyay, S.**, Lahiri, S. N., and Nordman, D. J. (2015), Frequency Domain Empirical Likelihood Method for Irregularly Spaced Spatial Data. **Annals of Statistics**, 43, 519-545.
9. **Bandyopadhyay, S.**, Jentsch, C., and Subba Rao, S. (2016), A Spectral Domain Test for Stationarity of Spatio-temporal Data. **Journal of Time Series Analysis**, *in press.*
10. **Bandyopadhyay, S.** and Subba Rao, S. (2017), A Test for Stationarity for Irregularly Spaced Spatial Data. **Journal of the Royal Statistical Society, Series B.**, 79(1), 95-123.
11. **Bandyopadhyay, S.** and Maity, A. (2017), Asymptotic Theory for Varying Coefficient Regression Models with Spatially Dependent Data. **Annals of the Institute of Statistical Mathematics**, doi: 10.1007/s10463-017-0607-z,*in press.*
12. Van Hala, M.*, **Bandyopadhyay, S.**, Lahiri, S. N., and Nordman, D. J. (2017), On the Non-standard Distribution of Empirical Likelihood Estimators with Spatial Data. **Journal of Statistical Planning and Inference**, doi: 10.1016/j.jspi.2017.02.007, *in press.*
13. Beyaztas, B.*, Beyaztas, U.*, **Bandyopadhyay, S.**, and Huang, W. M. (2017), A New and Fast Block Bootstrap Based Prediction Intervals for GARCH Processes with Application to Exchange Rates. **Sankhya, Series A**, *in press.*

Articles in Refereed Conference Proceedings

14. Chen, B. Y., and **Bandyopadhyay, S.** (2011), VASP-S: A Volumetric Analysis and Statistical Model for Predicting Steric Influences on Protein-Ligand Binding Specificity. **Proceedings of the IEEE International Conference on Bioinformatics and Biomedicine, Atlanta, GA**, 22-29.
15. Chen, B. Y., and **Bandyopadhyay, S.** (2011), A Statistical Model of Overlapping Volume in Ligand Binding Cavities. **Proceedings of the Computational Structural Bioinformatics Workshop, Atlanta, GA**, 424-431.
16. Guo, Z.*, Kuhlengel, T.§, Stinson, S.§, Blumenthal, S.§, **Bandyopadhyay, S.**, and Chen, B. Y. (2014), A Flexible Volumetric Comparison of Protein Cavities can Reveal Patterns in Ligand Binding Specificity. **Proceedings of the 5th ACM Conference on Bioinformatics, Computational Biology, and Health Informatics, Newport Beach, CA**, 445-454.

Articles Submitted to Refereed Journals/ Conference Proceedings

17. Kleiber, W., Nychka, D., and **Bandyopadhyay, S.**, Models for Large Multivariate Spatial Data. *submitted to Journal of the American Statistical Association.*
18. Van Hala, M.*, **Bandyopadhyay, S.**, Lahiri, S. N., and Nordman, D. J., A General Frequency Domain Method for Assessing Spatial Covariance Structure. *submitted to Annals of Statistics.*
19. Beyaztas, U.*, Alin, A., and **Bandyopadhyay, S.**, Iterated Sufficient m-out-of-n (m/n) Bootstrap for Nonregular Smooth Function Models. *Preprint.*

Honors and Awards

1. **Travel Award**, Big Data in Environmental Science, University of British Columbia, Vancouver, CA, May 11-15, 2015.
2. **Travel Award**, International Society for Non-Parametric Statistics (ISNPS), Chalkidiki, Northern Greece, June 15-19, 2012.
3. **NSF Travel Award**, International Conference on Advances in Interdisciplinary Statistics and Combinatorics, Greensboro, NC, 2012.
4. **Parzen Award**, Department of Statistics, Texas A&M University, 2010, TX.
5. **Kruskal Award**, Nonparametric Statistics, Refined, Redefined, and Renewed, 2009, Arlington, TX.
6. **JSM Student Paper Award**, Section on Nonparametric Statistics of ASA, 2008, Denver, CO.
7. **R.L. Anderson Student Paper Award**, Southern Regional Council on Statistics Annual Meeting, 2008, Charleston, SC.
8. **Eva L. & Lee H. Smith Graduate Fellowship**, Texas A&M University, 2006.
9. **Regents' Fellowship**, Texas A&M University, 2006-2007.
10. **GlaxoSmithKline Scholar Award**, Iowa State University, 2005-2006.

11. **NSF Travel Award**, Opening Workshop of the 2009-10 Program on Space-time Analysis for Environmental Mapping, Epidemiology and Climate Change, SAMSI, 2009, Research Triangle Park, NC.

Grants

1. National Science Foundation, *NSF-DMS-1406622*.

   Start Date: August 1, 2014; End Date: July 31, 2017.

   Budget: $166,013 for 3 years.

   PI: **Soutir Bandyopadhyay**, Lehigh University.

2. American Mathematical Society, *AMS-Simons Travel Grants* (Competitive).

   Start Date: July 1, 2012; End Date: June 30, 2014.

   Budget: $4,000 for 2 years.

   PI: **Soutir Bandyopadhyay**, Lehigh University.

3. Lehigh University, *Paul J. Franz and Class of '68 Fellowships* (Competitive).

   Summer 2013.

   Budget: $4,000.

   PI: **Soutir Bandyopadhyay**, Lehigh University.

Scholarly Presentations

Invited Presentations

1. "Wendland meets Markov: Kriging for LARGE spatial data" at **Department of Mathematical Sciences**, Montclair State University, NJ, November 14, 2016.
2. "A Spectral Domain Test for Stationarity of Spatial and Spatio-temporal Processes" at **Department of Applied Mathematics**, University of Colorado, Boulder, CO, October 14, 2016.
3. "A Spectral Domain Test for Stationarity of Spatial and Spatio-temporal Processes" at **Department of Mathematics**, Lehigh University, PA, September 14, 2016.
4. "Spatial Methods for Nonstationary Fields Using Compact Basis Functions" at **The 4th Institute of Mathematical Statistics Asia Pacific Rim Meeting**, The Chinese University of Hong Kong, June 27-30, 2016.
5. "A General Frequency Domain Method for Assessing Spatial Covariance Structure" at **Program on Empirical Likelihood Based Methods in Statistics**, NUS-IMS, Singapore, June-July, 2016.
6. "A General Frequency Domain Method for Assessing Spatial Covariance Structure" at **3rd Conference of the International Society for Nonparametric Statistics (ISNPS)**, France, June 11-16, 2016.
7. "Spatial Methods for Nonstationary Fields Using Compact Basis Functions" at **Department of Biostatistics**, University of Minnesota, MN, November 4, 2015.
8. "Spatial Modeling of the American Community Survey" at **Joint Statistical Meetings**, 2015, Seattle, WA.
9. "`LatticeKrig`: A Tale of Two Concepts" at **Center for Statistical Research and Methodology, U.S. Census Bureau**, Washington, DC, July, 2015.
10. "A Test for Stationarity for Irregularly Spaced Spatial Data" at **King Abdullah University of Science and Technology, Thuwal**, Kingdom of Saudi Arabia, May 19, 2015.
11. "Spatial Methods for Nonstationary Fields Using Compact Basis Functions" at **Big Data in Environmental Science**, University of British Columbia, CA, May 11-15, 2015.
12. "A Test for Stationarity for Irregularly Spaced Spatial Data" at **VI-MSS Workshop on Environmental Statistics, Kolkata**, India, March 3-5, 2015.
13. "Statistics for Large Spatial Data" at **Indian Institute of Management, Ahmedabad**, India, December 9, 2014.
14. "A Frequency Domain Empirical Likelihood Method for Irregularly Spaced Spatial Data." at **Statistics and Mathematics Unit, Indian Statistical Institute, Kolkata**, India, December 2, 2014.

15. "A Frequency Domain Empirical Likelihood Method for Irregularly Spaced Spatial Data." at **Department of Statistics and Applied Probability, NUS**, Singapore, November 28, 2014.
16. "Statistics for Large Spatial Data" at **Probability and Statistics Seminar, Department of Mathematics, Lehigh University**, November 14, 2014, Bethlehem, PA.
17. "A Test for Spatial Second Order Stationarity of a Spatial Random Field." at **Center for Statistical Research and Methodology, U.S. Census Bureau**, Washington, DC, September 10, 2014.
18. "Frequency Domain Empirical Likelihood based Tests of Spatial Structures" at **2014 IISA Conference on Probability, Statistics, and Data Analysis**, 2014, Riverside, CA.
19. "Frequency Domain Empirical Likelihood for Irregularly Spaced Spatial Data" at **Department of Statistics & Probability, Michigan State University.**, East Lansing, MI, February 11, 2014.
20. "Frequency Domain Empirical Likelihood for Irregularly Spaced Spatial Data" at **Department of Statistics & Biostatistics, Rutgers University.**, Piscataway, NJ, January 22, 2014.
21. "A Test for Spatial Second Order Stationarity of a Spatial Random Field." at **Department of Mathematical Sciences, Binghamton University**, Binghamton, NY, October 24, 2013.
22. "A Test for Spatial Second Order Stationarity of a Spatial Random Field." at **Special Session at the AMS Fall Southeastern Sectional Meeting**, Louisville, KY, October 4-6, 2013.
23. "Multi-resolution Gaussian Process Model for the Analysis of Large Spatial Data" at **MOPTA 2013**, Bethlehem, PA, August 14-16, 2013.
24. "Multi-resolution Gaussian Process Model for the Analysis of Large Spatial Data" at **International Conference on Advances in Interdisciplinary Statistics and Combinatorics**, Greensboro, NC, October 2012.
25. "Frequency Domain Empirical Likelihood for Irregularly Spaced Spatial Data" at **1st Conference of the International Society for Nonparametric Statistics (ISNPS)**, Greece, June 15-19, 2012.
26. "Frequency Domain Empirical Likelihood for Irregularly Spaced Spatial Data" at **Department of Mathematics and Statistics, UMBC**, 2012, Baltimore, MD.
27. "Frequency Domain Empirical Likelihood for Irregularly Spaced Spatial Data" at **Department of Statistics, Texas A&M University**, 2012, College Station, TX.
28. "Frequency Domain Empirical Likelihood for Irregularly Spaced Spatial Data" at **Department of Statistics, Iowa State University**, 2012, Ames, IA.
29. "Multi-resolution Gaussian Process Model for the Analysis of Large Spatial Data" at **Conference on Contemporary Issues and Applications of Statistics**, 2012, Kolkata, India.
30. "Multi-resolution Gaussian Process Model for the Analysis of Large Spatial Data" at **22nd Annual Conference of The International Environmetrics Society**, 2012, Hyderabad, India.
31. "Frequency Domain Empirical Likelihood for Irregularly Spaced Spatial Data" at **Mathematics Department, Lehigh University**, 2011, Bethlehem, PA.
32. "Analysis of Sabine River Flow Data Using Semiparametric Spline Modeling" at **2011 IISA Conference on Probability, Statistics, and Data Analysis**, 2011, Raleigh, NC.
33. "On Frequency Domain Statistical Analysis of Irregularly Spaced Spatial Data" at **Mathematics Department, UT at Dallas**, 2010, Dallas, TX.
34. "On Frequency Domain Statistical Analysis of Irregularly Spaced Spatial Data" at **Mathematics Department, Lehigh University**, 2010, Bethlehem, PA.
35. "On Frequency Domain Statistical Analysis of Irregularly Spaced Spatial Data" at **IBM Research, Watson Research Center**, 2010, Yorktown Heights, NY.

Organized or Chaired Sessions

1. Organizer of an invited session at **2015 IISA Conference on Probability, Statistics, and Data Analysis**, 2015, Pune, India.
2. Organizer of a TC session on *Theory and Methods for Massive Spatial Data* at **Joint Statistical Meetings**, 2015, Seattle, WA.
3. Session chair for *Hierarchical Bayesian Models to Support Next Generation Climate Data Products* at **Joint Statistical Meetings**, 2014, Boston, MA.

4. Organizer of a session on *Recent Developments in Environmental Statistics* at **International Conference on Advances in Interdisciplinary Statistics and Combinatorics**, 2012, Greensboro, NC.
5. Member of the International Organizing Committee for the **Young Statisticians Meet-An International Conference**, 2012, Department of Statistics, University of Burdwan, India.
6. Session Chair for *Small Area Estimation* at **2011 IISA Conference on Probability, Statistics, and Data Analysis**, 2011, Raleigh, NC.

Teaching

1. Fall 2016, MATH 12 (Basic Statistics), 46 students; MATH 231 (Probability and Statistics), 44 students, MATH 374 (Statistical Project), 1 student.
2. Summer 2016, MATH 231 (Probability and Statistics), 15 students.
3. Spring 2016, MATH 231 (Probability and Statistics, 2 sections), total 106 students.
4. Fall 2015, MATH 12 (Basic Statistics), 52 students; MATH 231 (Probability and Statistics), 57 students.
5. Summer 2015, MATH 12 (Basic Statistics), 5 students.
6. Spring 2015, MATH 12 (Basic Statistics), 29 students; MATH 461 (Special Topic course in Time Series), 6 students.
7. Fall 2014, on leave.
8. Spring 2014, MATH 12 (Basic Statistics), 29 students; MATH 338 (Linear Model in Statistics), 16 students.
9. Fall 2013, MATH 12 (Basic Statistics), 46 students; MATH 461 (Special Topic course in Time Series), 8 students.
10. Spring 2013, BIOS 130 (Biostatistics), 83 students; MATH 338 (Linear Model in Statistics), 18 students; MATH 374 (Statistical Project), 1 student.
11. Fall 2012, MATH 12 (Basic Statistics, 2 sections), total 98 students; MATH 374 (Statistical Project), 2 students.
12. Spring 2012, BIOS 130 (Biostatistics), 83 students; MATH 338 (Linear Model in Statistics), 22 students.
13. Fall 2011, MATH 12 (Basic Statistics), 47 students.
14. Spring 2011, MATH 12 (Basic Statistics), 38 students; MATH 338 (Linear Model in Statistics), 28 students.
15. Fall 2010, MATH 12 (Basic Statistics), 57 students.

Graduate Advising

1. Matthew Van Hala, PhD student, Iowa State University (graduated in 2014, co-advised with Prof. D. J. Nordman, ISU): Currently a predictive modeler at Zurich North America Company in Schaumburg, IL.
2. Ufuk Beyaztas, PhD student, Dokuz Eyliil University, Turkey. (graduated in 2016, co-advised with Prof. Serdar Kurt, DEU): Will be joining as an Assistant Professor at Istanbul Medeniyet University, Istanbul.
3. Beste Hamiye Sertoemir, PhD student, Dokuz Eyliil University, Turkey. (a current student, co-advised with Prof. Esir Firuzan, DEU): Expected to graduate in June, 2017.
4. Maria Hengeveld, MS student, Lehigh University (worked under NSF-DMS-1406622 and we jointly wrote a paper): Currently working as an Associate at Axtria Inc. in Berkeley Heights, NJ.
5. Member of PhD committee: Liangjie Hong (graduated in 2013, Department of Computer Science and Engineering, Lehigh University): Currently working as a senior manager of research at Yahoo Research in Sunnyvale, CA.

Service

Department

- Volunteer at Candidates' Day, Spring 2016.
- Volunteer at Candidates' Day, Spring 2015.
- Volunteer at Senior Open House, Fall 2013.
- Advisor for Minor in Statistics, Fall 2013 onwards.
- Member of Statistics Qualifying Exam Committee, Spring 2013.
- Mathematics Department Library Representative, Spring 2011 & Fall 2013 onwards.

College

- Member of the Data Science Program committee.

University

- Member of the tenure-track Assistant Professor level search committee in the area of "Smart Manufacturing with data analytics" in Department of Chemical and Biomolecular Engineering.
- Member of 'Integrated Networks for Electricity cluster' search committee, Lehigh University, Fall 2012.
- Member of 'Big Data cluster' committee, Lehigh University, Fall 2012.
- Member of Committee on Facilities Planning as an At Large representative for 1 year, Fall 2014-Spring 2015.

Professional

- Secretary for IISA starting 2017.
- Grant review: National Security Agency Mathematical Sciences (NSA).
- Invited judge in 2014 IISA Conference, Riverside, CA, July 11-13, 2014.
- Invited judge in Annual Probability and Statistics Day at UMBC in 2013, 2014.
- Peer Reviewer for *IEEE Transactions on Information Theory, Journal of the American Statistical Association, Annals of Statistics, Annals of Applied Statistics, Journal of Computational and Graphical Statistics, Statistica Sinica, Journal of Multivariate Analysis, Journal of Time Series Analysis, Journal of the Korean Statistical Society, Journal of Agricultural, Biological, and Environmental Statistics, Journal of Statistical Planning and Inference, Journal of Nonparametric Statistics, STAT, Computational Statistics and Data Analysis, Journal of Statistical Computation and Simulation, Statistics and Probability Letters, Sankhya, Statistical Methodology, Statistics, International Journal of Health Geographics, Indian Journal of Pure and Applied Mathematics.*
- Reviewer of an article submitted to an edited volume on *Current Trends in Bayesian Methodology with Applications* edited by Dipak K. Dey, Umesh Singh and A. Loganathan.
- Professional memberships: *American Statistical Association (ASA), Institute of Mathematical Statistics (IMS), International Indian Statistical Association (IISA).*