

# Gauri Sankar Datta

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EDUCATION	Ph.D. in Statistics University of Florida, Gainesville	August 1990
	M.Sc. in Statistics University of Calcutta, India	August 1985
	B.Sc. in Statistics Ramakrishna Mission Residential College, Narendrapur, Calcutta, India	August 1983
PROFESSIONAL EXPERIENCE	Professor University of Georgia	August 2001 –
	Mathematical Statistician U.S. Bureau of the Census	September 2011 –
	Cariparo Foundation Visiting Professor University of Padua, Italy	May 2009 – July 2009
	Visiting Professor University of Melbourne	September 2008 – November 2008
	SAMSI Duke University Fellow SAMSI/Duke University	September 2005 – June 2006
	Associate Professor (tenured) University of Georgia	September 1996 – August 2001
	ASA/NSF/BLS/Census Senior Research Fellow BLS & Census Bureau	August 1997 – July 1998
	Visiting Associate Professor University of Nebraska	August 1996 – December 1996
	Visiting Research Scholar Purdue University	August 1993 – December 1993
	Assistant Professor University of Georgia	September 1990 – August 1996
	Bureau of the Census Research Associate Bureau of the Census	July 1992 – August 1992
	ASA/NSF/Census Research Associate Bureau of the Census	April 1991 – August 1991

ASA/NSF/Census Research Associate Bureau of the Census	January 1990 – August 1990
Research Assistant University of Florida	September 1989 – December 1989
Graduate Assistant University of Florida	January 1988 – December 1988
Teaching Assistant University of Florida	January 1987 – December 1987
Instructor Narendrapur R.K.M.R. College, India	January 1986 – December 1986

AWARDS, HONORS  
AND SPECIAL  
RECOGNITIONS

Elected **Member** of *International Statistical Institute* (1999).  
Elected **Fellow** of *The American Statistical Association* (2006).  
*Distinguished Alumnus Award, Department of Statistics, University of Florida* (2007).  
Elected **Fellow** of *The Institute of Mathematical Statistics* (2009).  
Member of Phi Kappa Phi Honor Society, University of Florida Chapter.  
The Statistics Faculty Award for the outstanding senior graduate student in Statistics for the year 1987-1988 at University of Florida.  
First class (First) in M.Sc., 1985, Calcutta University.  
First class (First) in B.Sc., 1983, Calcutta University.  
Government of India Post Graduate Merit Scholarship 1984-85.  
Best Student Award for standing first in the first class in B.Sc., Statistics, 1983, Calcutta University.

RESEARCH  
INTERESTS

Small Area Estimation, Survey Sampling, Bayesian Analysis, Syndromic Surveillance, Linear Models, Likelihood Inference, Multivariate Analysis, Asymptotics, Bayes-Frequentist Interface, Development of Non-subjective Priors.

GRANTS,  
CONTRACTS AND  
FELLOWSHIPS

RESEARCH GRANTS FUNDED

1. ASA/NSF/Census Research Grant for April-August, 1991.
2. Research Grant from Univ. of Georgia for June-August, 1992.
3. ASA/NSF/Census Research Grant for July-August, 1992.
4. Research Grant from Univ. of Georgia for June-August, 1993.
5. Parametric Empirical Bayes Point and Interval Estimation in Small Area Estimation from Complex Surveys. **National Science Foundation**, SBR-9705145, 1997-2000, (no-cost extension 2000-2001).
6. Mean Squared Error Approximation with Sampling Error Modeling in Small Area Estimation. **ASA/NSF/BLS/Census Senior Research Fellowship Program**, 8/97-7/98, salary, travel and other benefits.
7. Higher order asymptotics in Bayes and likelihood-based inference. **National Security Agency**, 1999-2000.

8. Asymptotic Approaches to Bayes and Likelihood Inference. **National Science Foundation**, 2000-2002, (no-cost extension 2002-2004).
9. Bayes, Frequentist, and Likelihood Inference with Applications to Small Area Estimation. **National Security Agency**, 2003-2005.
10. Cross-Sectional and Time Series Approaches to Small Area Estimation: Methods and Applications. **National Science Foundation**, 2003-2006, (no-cost extension 2006-2007).
11. Topics in Bayesian Analysis, Empirical Likelihood and Decision Theory with Applications. **National Security Agency**, 2008-2010.
12. Collaborative Research for Developing ATD: Bayesian Methods in Syndromic Surveillance: CAR Models and Computational Implementation. **National Science Foundation**, 2009-2011, (no-cost extension 2011-2012).
13. Some new solutions to small area estimation problems: expanding the scope of small area estimation. **National Security Agency**, 2011-2013.

#### CONFERENCE AND TRAVEL GRANTS

1. Bayes, frequentist and likelihood inference: a synthesis, a conference proposal funded by the **National Science Foundation** and sponsored by the **Institute of Mathematical Statistics**, the **Society for Industrial and Applied Mathematics**, and the **American Mathematical Society** (Co-PI Nancy Reid and Dongchu Sun), 2000.
2. Numerous travel grants from the UGA Research Foundation.
3. NSF-CBMS Travel award, Workshop on small area estimation, Univ. of Connecticut, Storrs, July 1994.
4. NSF Travel grant from the Young Researcher's Writing Workshop Committee, August 1992.

#### PUBLICATIONS

##### BOOKS AND MONOGRAPHS

1. Datta, G.S., & Mukerjee, R. (2004), *Probability Matching Priors: Higher Order Asymptotics. Lecture Notes in Statistics*. Springer-Verlag, New York.

##### REFEREED PUBLICATIONS: PUBLISHED

1. Datta, G.S., & Ghosh, M. (1988), "MRE estimators of percentiles in location-scale families of distributions", *Calcutta Statistical Association Bulletin*, 37, 201-207.
2. Ghosh, M., & Datta, G.S. (1989), "Uniformly minimum variance unbiased estimation for discrete distributions with support depending on the parameter", *American Statistician*, 43, 17-19.
3. Datta, G.S., & Ghosh, M. (1990-91), "On the frequentist properties of some hierarchical Bayes predictors in finite population sampling", *Calcutta Statistical Association Bulletin*, 40, 207-217.
4. Datta, G.S., & Ghosh, M. (1991), "Asymptotic optimality of hierarchical Bayes estimators and predictors", *Journal of Statistical Planning and Inference*, 29, 229-243.
5. Datta, G.S., & Ghosh, M. (1991), "Bayesian prediction in linear models: applications to small area estimation", *Annals of Statistics*, 19, 1748-1770.
6. Datta, G.S. (1991), "Pitman closeness for hierarchical Bayes predictors in mixed linear models", *Communications in Statistics - Theory and Methods*, 20, 3713-3727.

7. Datta, G.S. (1992), "A unified Bayesian prediction theory for mixed linear models with application", *Statistics and Decisions*, 10, 337-365.
8. Datta, G.S., & Sriram, T.N. (1992), "Pitman representations of the best equivariant predictors for the regression models with location-scale families of distributions", *Statistics and Decisions*, 10, 367-388.
9. Datta, G.S., Ghosh, M., Huang, E., Isaki, C., Schultz, L., & Tsay, J. (1992), "Hierarchical and empirical Bayes methods for adjustment of census undercount: The 1988 Missouri dress rehearsal data", *Survey Methodology*, 18, 95-108.
10. Datta, G.S. (1992), "Some applications of Anderson's inequality to some optimality criteria of the generalized least squares estimator", *Metrika*, 39, 239-251.
11. Datta, G.S., & Ghosh, M. (1993), "Bayesian estimation of finite population variances with auxiliary information", *Sankhyā*, B, 55, 156-170.
12. Bose, S., Datta, G.S., & Ghosh, M. (1993), "Pitman's measure of closeness for symmetric stable distributions", *Statistics and Probability Letters*, 17, 245-251.
13. Chattopadhyay, M.K., & Datta, G.S. (1994), "Finite population prediction for stratified sampling under error-in-variables superpopulation models", *Sankhyā*, B, 56, 415-433.
14. Datta, G.S., & Ghosh, J.K. (1995), "On priors providing frequentist validity for Bayesian Inference", *Biometrika*, 82, 37-45.
15. Datta, G.S., & Ghosh, M. (1995), "Hierarchical Bayes estimators of the error variance in one-way ANOVA models", *Journal of Statistical Planning and Inference*, 45, 399-411.
16. Datta, G.S., & Lahiri, P. (1995), "Robust hierarchical Bayes estimation of small area characteristics in presence of covariates and outliers", *Journal of Multivariate Analysis*, 54, 310-328.
17. Datta, G.S., & Ghosh, M. (1995), "Some remarks on noninformative priors", *Journal of the American Statistical Association*, 90, 1357-1363.
18. Datta, G.S., & Ghosh, J.K. (1995), "Noninformative priors for maximal invariant in group models", *TEST*, 4, 95-114.
19. Datta, G.S., & Ghosh, M. (1996), "On the invariance of noninformative priors", *Annals of Statistics*, 24, 141-159.
20. Datta, G.S., Ghosh, M., Nangia, N., & Natarajan, K. (1996), "Estimation of median income of four-person families: A Bayesian approach", In *Bayesian Analysis in Statistics and Econometrics*, (Eds. D.A. Berry, K.M. Chaloner and J.K. Geweke), 129-140, Wiley.
21. Datta, G.S. (1996), "On priors providing frequentist validity for Bayesian inference for multiple parametric functions", *Biometrika*, 83, 287-298.
22. Datta, G.S., Day, B., & Maiti, T. (1998), "Multivariate Bayesian small area estimation: an application to survey and satellite data", *Sankhyā A*, 60, 344-362.
23. Datta, G.S., Day, B., & Basawa, I.V. (1999), "Empirical best linear unbiased and empirical Bayes prediction in multivariate small area estimation", *Journal of Statistical Planning and Inference*, 75, 269-279.
24. Datta, G.S., Lahiri, P., Maiti, T., & Lu, K.L. (1999), "Hierarchical Bayes estimation of unemployment rates for the states of the U.S.", *Journal of the American Statistical Association*, 94, 1074-1082.
25. Datta, G.S., Ghosh, M., & Waller, L. (2000), "Hierarchical and empirical Bayes methods for environmental risk assessment", *Handbook of Statistics, Bioenvironmental and Public Health Statistics*, 18, pp. 223-245, Eds.: P.K. Sen and C.R. Rao. North-Holland.
26. Datta, G.S., & Lahiri, P. (2000), "A unified measure of uncertainty of estimated best linear unbiased predictor in small area estimation problems", *Statistica Sinica*, 10, 613-627.

27. Datta, G.S., Mukerjee, R., Ghosh, M., & Sweeting, T. (2000), "Bayesian prediction with approximate frequentist validity", *Annals of Statistics*, 28, 1414-1426.
28. Datta, G.S., Ghosh, M., & Mukerjee, R. (2000), "Some new results on probability matching priors", *Calcutta Statistical Association Bulletin*, 50, 179-192.
29. Datta, G.S., & DiCiccio, T.J. (2001), "On expected volumes of multidimensional confidence sets associated with the usual and adjusted likelihoods", *Journal of the Royal Statistical Society B*, 63, 691-703.
30. Datta, G.S., Lahiri, P., & Maiti, T. (2002), "Empirical Bayes estimation of median income of four-person families by state using time series and cross-sectional data", *Journal of Statistical Planning and Inference*, 102, 83-97.
31. Datta, G.S., Ghosh, M., & Kim, Y-H. (2002), "Probability matching priors for one-way unbalanced random effects models", *Statistics and Decisions*, 20, 29-51.
32. Datta, G.S., Ghosh, M., Smith, D., & Lahiri, P. (2002), "On an asymptotic theory of conditional and unconditional coverage probabilities of empirical Bayes confidence intervals", *Scandinavian Journal of Statistics*, 29, 139-152.
33. Datta, G.S., & Smith, D. (2003), "On the propriety of posterior distributions based on noninformative priors in variance components models", *Journal of Statistical Planning and Inference*, 112, 175-183.
34. Datta, G.S., & Mukerjee, R. (2003), "Probability matching priors for predicting a dependent variable with application to regression models", *The Annals of the Institute of Statistical Mathematics*, 55, 1-6.
35. Datta, G.S., Ghosh, M., & Mallick, B.K. (2003), "On the propriety of posteriors for proportional hazards models", *Journal of Statistical Research*, 37, 17-19.
36. Datta, G.S., Rao, J.N.K., & Smith, D. (2005), "On measuring the variability of small area estimators under a basic area level model", *Biometrika*, 92, 183-196.
37. Datta, G.S. (2005), "An alternative derivation of the distributions of the maximum likelihood estimators of the parameters in an inverse Gaussian distribution", *Biometrika*, 92, 975-977.
38. Datta, G.S., & Sweeting, T.J., (2005), "Probability matching priors", *Handbook of Statistics, Vol 25: Bayesian Thinking: Modeling and Computation*, Eds.: D. Dey and C.R. Rao, pp. 91-114. Elsevier.
39. Sweeting, T.J., Datta, G.S., & Ghosh, M. (2006), "Nonsubjective priors via predictive relative entropy regret", *Annals of Statistics*, 34, 441-468.
40. Chowdhury, A.S., Bhandarkar, S.M., Datta, G.S., & Yu, J.C. (2006), "Automated detection of stable fracture points in computed tomography image sequences", *Proc. of Third IEEE International Symposium on Biomedical Imaging (ISBI)*, pp. 1320-1323, Arlington, VA, USA.
41. Ghosh, M., Datta, G.S., Kim, D., & Sweeting, T.J. (2006), "Likelihood-based inference for the ratios of regression coefficients in linear models", *Annals of the Institute of Statistical Mathematics*, 58, 457-473.
42. Datta, G.S., & Ghosh, M. (2007), "Characteristic functions without contour integration", *The American Statistician*, 61, 67-70.
43. Datta, G.S. (2007), "On symmetry of finite mixtures of normal distributions", *Journal of Statistical Planning and Inference*, 137, 2993-2995.
44. Bhattacharya, A., Clarke, B.S., & Datta, G.S. (2008), "A Bayesian test for excess zeros in zero-inflated power series distribution", in *Beyond Parametrics in Interdisciplinary Research: Festschrift in honor of Professor Pranab K. Sen. IMS Collections, Vol 1*, pp. 89-104. Eds.: N. Balakrishnan, E. Pena and M. Silvapulle. Institute of Mathematical Statistics.

45. Chowdhury, A.S., Bhattacharya, A., Bhandarkar, S.M., Datta, G.S., Yu, J.C., & Figueroa, R. (2006), "Hairline fracture detection using MRF and Gibbs sampling", Proc. of Eighth IEEE Wkshp. on Applications of Computer Vision (WACV), Austin, TX, 2007, p. 56.
46. Bayarri, M.J., Berger, J.O., & Datta, G.S. (2008), "Objective Bayes testing of Poisson versus inflated Poisson models", in *Pushing the Limits of Contemporary Statistics: Contributions in honor of Jayanta K. Ghosh*. **IMS Collections, Vol 3**, pp. 105-121. Eds.: B. Clarke, and S. Ghosal. Institute of Mathematical Statistics.
47. Ghosh, M., Mergel, V., & Datta, G.S. (2008), "Estimation, prediction and the Stein phenomenon under divergence loss", *Journal of Multivariate Analysis*, 99, 1941-1961.
48. Datta, G.S., & Sarkar, S. (2008), "A general proof of some known results of independence between two statistics", *American Statistician*, 62, 141-143.
49. Datta, G.S., & Ghosh, M. (2009), "Developments in model-based small area estimation", *Encyclopedia of Survey Research Methods*, Ed.: P.J. Lavrakas, Sage Publication, pp. 821-823.
50. Torabi, M., Datta, G.S., & Rao, J.N.K. (2009), "Empirical Bayes estimation of small area means under a nested error linear regression model with measurement errors in the covariates", *Scandinavian Journal of Statistics*, 36, 355-368.
51. Datta, G.S. (2009), "Model-based approach to small area estimation", in: *Handbook of Statistics: Sample Surveys: Inference and Analysis, Volume 29B*, Eds.: D. Pfeiffermann and C.R. Rao, The Netherlands: North-Holland, pp. 251-288.
52. Datta, G.S., Rao, J.N.K., & Torabi, M. (2010), "Pseudo-empirical Bayes estimation of small area means under a nested error linear regression model with functional measurement errors" *Journal of Statistical Planning and Inference*, 140, 2952-2962, doi:10.1016/j.jspi.2010.03.046.
53. Datta, G.S., & Rao, J.N.K. (2010), "The choice of nonsubjective priors on hyperparameters for some hierarchical Bayes models", in *Frontiers of Statistical Decision Making and Bayesian Analysis: In Honor of James O. Berger*. **Springer**, pp. 237-247. Eds.: M-H. Chen, D.K. Dey, Peter Muller, D. Sun and K. Ye.
54. Datta, G.S., Ghosh, M., Steorts, R., & Maples, J. (2011), "Bayesian benchmarking with applications to small area estimation", *TEST*, 20, 574-588.
55. Datta, G.S., Kubokawa, T., Molina, I., & Rao, J.N.K. (2011), "Estimation of mean squared error of model-based small area estimators", *TEST*, 20, 367-388.
56. Datta, G.S., Hall, P., & Mandal, A. (2011), "Model selection by testing for the presence of small-area effects, and applications to area-level data", *Journal of the American Statistical Association*, 106, 361-374.
57. Banks, D., Datta, G.S., Karr, A., Lynch, J., Niemi, J., & Vera, F. (2012). "Bayesian CAR models for syndromic surveillance on multiple data streams: theory and practice", *Information Fusion*, 13, 105-116.
58. Datta, G.S., & Ghosh, M. (2012), "Small area shrinkage estimation", *Statistical Science*, 27, 95-114.
59. Heaton, M.J., Zou, F., Banks, D.L., Karr, A.F., Datta, G.S., Lynch, J., & Vera, F. (2012), "A spatio-temporal absorbing state model for disease and syndromic surveillance". To appear in *Statistics in Medicine*.
60. Zou, J., Karr, A.F., Banks, D.L., Heaton, M., Datta, G.S., Lynch, J., & Vera, F. (2012), "Bayesian methodology for spatio-temporal syndromic surveillance". To appear in *Statistical Analysis and Data Mining, DOI:10.1002/sam.10142*.
61. Arima, S., Datta, G.S., & Liseo, B. (2012), "Objective Bayesian analysis of a measurement error small area model", *Bayesian Analysis*, 7, 363-384.

## REFEREED PUBLICATIONS: SUBMITTED

1. Bell, W.R., Datta, G.S. & Ghosh, M. (2012), "Benchmarking small area estimators", tentatively accepted in *Biometrika*.

## MANUSCRIPTS UNDER PREPARATION

1. Datta, G.S., Mandal, A. & Wanjoya, A., "Small area estimation with uncertain small area effects".
2. Arima, S., Datta, G.S., & Liseo, B. (2012), "Bayesian estimators for small area models when auxiliary information is measured with error".

## UNREFEREED PUBLICATIONS

1. Datta, G.S., Fay, R.E., & Ghosh, M. (1991), "Hierarchical and empirical multivariate Bayes analysis in small area estimation", *Proceedings of the Seventh Annual Research Conference of the Bureau of the Census*, pp. 63-79. This was an invited presentation in the **Annual Research Conference**. A substantially expanded version appeared as Publication 20.
2. Datta, G.S., & Lahiri, P. (1992), "Composite estimation of unemployment rates for small domains", *Proceedings of the Eighth Annual Research Conference of the Bureau of the Census*, pp. 353-363. This was an invited presentation in the **Annual Research Conference**. A substantially expanded version appeared as Publication 24.
3. Datta, G.S., Lahiri, P., & Lu, K.L. (1996), "Small area estimation of unemployment rates for the U.S. states: a Hierarchical Bayes approach in time series analysis (with discussion by R. Tiller)", *Proceedings of the Annual Research Conference and Technology Interchange*, March, 1996, pp. 432-454. This was an invited presentation in the **Annual Research Conference**. A substantially expanded version appeared as Publication 24.
4. Datta, G.S. (1998), "Location-Scale Family", *Encyclopedia of Biostatistics*, Vol. 3, (Eds. P. Armitage and T. Colton), pp. 2308-2310, Wiley. (*Invited contribution*).
5. Datta, G.S. (1999), *Invited* discussion of "Nested hypothesis testing" by J. Bernardo, *Bayesian Statistics*, 6, Eds.: J. Bernardo, J. Berger, A.P. Dawid and A.F.M. Smith, Oxford University Press, Oxford, pp. 117-119.
6. Datta, G.S., & Lahiri, P. (2001), Discussion of "Scales of evidence for model selection: Fisher versus Jeffreys" by Brad Efron and Alan Gous. **IMS Lecture Notes Monograph Series**, 38, Ed. P. Lahiri, pp. 249-254.
7. Sweeting, T.J., Datta, G.S., & Ghosh, M., (2004), "Predictive relative entropy loss and prior specification", *Proceedings of the JSM (2004)*, *Bayesian Statistics section*.
8. Datta, G.S. (2004), Book review: *Small Area Estimation* by J.N.K. Rao, Wiley. *Journal of the American Statistical Association*, 99, 294-295.
9. Datta, G.S. (2012), *Invited* discussion of "Bayesian Priors from Loss Matching" by P.J. Brown and S.G.Walker, *International Statistical Review*.
10. Brown, D.A., Lazar, N.A., & Datta, G.S. (2011), "Bayesian multiple testing under dependence with application to functional magnetic resonance imaging", *Proceedings of Section on Bayesian Statistical Science, JSM 2011*, pp. 4708-4722.

## UNPUBLISHED MANUSCRIPTS

1. Datta, G.S., & Lahiri. P. (1992), “Robust hierarchical Bayes estimation of small area characteristics in presence of covariates”, *Technical report No. 92-28*, Department of Statistics, Univ. of Georgia, Athens. (A substantially revised version of this has appeared as Publication 16).
2. Datta, G.S. (1999), “On asymptotic volumes of confidence sets for a parameter vector associated with the usual and adjusted likelihoods”, *Technical report No. 99-21*, Department of Statistics, Univ. of Georgia, Athens. (A substantially expanded version of this is has appeared as Publication 29).
3. Datta, G.S., & Lahiri. P. (2000), “A comparison of the Bayes factor and frequentist Bayes factor for a balanced one-way random effects model”.
4. Datta, G.S. (2002), “Symmetry of finite mixtures of normal distributions”. (A revised version of this has appeared as Publication 43).
5. Datta, G.S. (2007), “An elementary derivation of the joint distribution of the sample mean and the sample variance of a normal random sample”.
6. Chowdhury, A.S., Bhattacharya, A., Bhandarkar, S.M., Datta, G.S., & Yu, J.C. (2007), “Hair-line fracture detection and target pattern generation using MRF and Bayesian image restoration”.

## TEACHING EXPERIENCE

### REGULAR COURSES

Statistical Methods for non-Statistics Researchers; Design of Experiments, Regression and Analysis of Variance; Applied Regression Analysis; Introductory Mathematical Statistics; Introductory Statistical Inference; Statistical Inference for First Year Graduate Students; Linear Statistical Models; Applied Time Series Analysis; Bayesian Methods; Statistical Consulting; Applied Multivariate Analysis; Advanced Survey Sampling and Small Area Estimation; Advanced Statistical Inference.

### SHORT COURSES AT PROFESSIONAL MEETINGS AND OTHERS INSTITUTES

1. Offered a short course on *Bayesian Data Analysis* to Industry Statisticians in 1997 in Orlando, Florida.
2. Offered a short course on *Bayesian Data Analysis* to Industry Statisticians in 1999 Deming Conference in Atlantic City, New Jersey.
3. Offered a short course on *Bayesian Data Analysis* in 2000 in Merck Pharmaceuticals, Somerset, New Jersey.
4. Offered a two-day short course on small area estimation in ISTAT, Rome, Italy, June 14-15, 2007.
5. Offered a two-day short course on small area estimation in Department of Statistics, University of Milan-Bicocca, Italy, June 18-19, 2009.
6. Offered a two-day short course on small area estimation in Department of Statistics, University of Rome-III, Italy, July 28-29, 2009.

## RESEARCH SUPERVISION

1. Jointly supervised Ph.D. dissertation of Bann-mo Day with Professor I.V. Basawa (1998).
2. Jointly supervised Ph.D. dissertation of David Smith with Professor T.N. Sriram (2001).
3. Supervised Ph.D. dissertation of Guorong Chen (2004).
4. Jointly supervised Ph.D. dissertation of Ying Yang with Professor P. Muller (2005).
5. Jointly supervised Ph.D. dissertation of Mi-Ja Woo with Professor T.N. Sriram (2005).
6. Jointly supervised Ph.D. dissertation of Archan Bhattacharya with Professor T.N. Sriram (2007).
7. Jointly supervising dissertation of Andrew Brown with Professor N. Lazar (expected date of graduation 2012).
8. Jointly supervising dissertation of Adrijo Chakraborty with Professor A. Mandal (expected date of graduation 2013).

## PRESENTATIONS

### INVITED

1. International Symposium on Optimization and Statistics, Aligarh Muslim University, Aligarh, India, December, 1989.
2. Joint Statistical Meetings, Anaheim, CA, August, 1990.
3. Annual Research Conference of the U.S. Census Bureau, Washington, DC, March 17-20, 1991.
4. Conference on Pitman's measure of closeness celebrating a decade of renaissance, University of Texas, San Antonio, TX, June 15, 1991.
5. First International Triennial Calcutta Symposium on Probability and Statistics, Calcutta University, Calcutta, India, December 27, 1991 - January 1, 1992.
6. Annual Research Conference of the U.S. Census Bureau, Washington, DC, March 22-25, 1992.
7. Forty-fourth meeting of NSF-NBER Seminar on Bayesian Inference in Econometrics and Statistics, Washington University, St. Louis, MO, April 10-11, 1992.
8. NSF-NBER seminar on Bayesian Inference in Econometrics and Statistics, Duke University, Durham, NC, November 13-14, 1992.
9. 5th Valencia International Meeting on Bayesian Statistics, Alicante, Spain, June 5-9, 1994.
10. International Society for Bayesian Analysis: 2nd Annual Meeting, Alicante, Spain, June 10-11, 1994.
11. Joint Statistical Meetings, Toronto, August, 1994.
12. CDC/ATSDR Symposium on Statistical Methods, Atlanta, January, 1995.
13. Third World Meeting of ISBA, Oaxaca, Mexico, September 29-30, 1995.
14. Annual Research Conference of the U.S. Census Bureau, Washington, DC, March 17-21, 1996.
15. Default Bayes Workshop, Purdue University, organized by J.O. Berger, November, 1996. (Discussant).
16. Seventh Eugene Lukacs Symposium on Robustness in Multivariate and Survival Models, Bowling Green, Ohio, April 25-27, 1997.
17. International Conference on Combinatorics, Information Theory and Statistics, Portland, Maine, July 18-20, 1997.
18. Current Topics in Sample Survey, Univ of Nebraska-Lincoln, Lincoln, NE, October 24-26, 1997.

19. Conference on Small Area Estimation, U.S. Bureau of the Census, Washington, DC, March, 1998.
20. Sixth International Valencia Meeting on Bayesian Statistics, Alcossebre, Spain, May 30-June 4, 1998. (Discussant).
21. Joint Statistical Meetings, Dallas, August, 1998.
22. Second IISA Conference, Hamilton, ON, October, 1998.
23. Model Selection, Empirical Bayes and Related Topics. University of Nebraska, Lincoln, March, 1999.
24. Workshop on Objective Bayesian Analysis. University of Valencia, Spain, June, 1999.
25. International Seminar on Statistics, University of Calcutta, India, June, 1999.
26. FORMSTAT, Italian Statistical Agency, Rome, Italy, October, 1999.
27. Foundational Issues and Statistical Practice, Bibbiena, Italy, October, 1999.
28. Symposium on Selected Topics in Variance Components Analysis. Gainesville, FL, January, 2000.
29. Sixth World Meeting of ISBA, Iraklion, Greece, May 28-June 2, 2000.
30. Sixth Default Bayes Workshop, Ixtapa, Mexico, September 22-26, 2000. (Discussant).
31. Fourth International Triennial Calcutta Symposium on Probability and Statistics, Calcutta, India, December 26-28, 2000.
32. International Conference on Small Area Estimation and Related Topics, Potomac, MD, April 11-14, 2001.
33. International Conference on Recent Advances in Survey Sampling in honor of Professor J.N.K. Rao, Ottawa, July 9-13, 2002.
34. Annual IMS Meeting. Banff, Canada, July 27-31, 2002.
35. 2004 World Meeting of ISBA, Vina del Mar, Valparaiso, Chile, May 23-28, 2004.
36. Fifth Objective Bayes International Workshop, Branson, Missouri, June 4-8, 2005. (Discussant).
37. International Conference on Small Area Estimation, University of Jyväskylä, Finland, August 29-31, 2005.
38. Seventeenth Brazilian Symposium of Probability and Statistics, Caxambu, Brazil, July 24-28, 2006.
39. Sixth Objective Bayes International Workshop, Rome, Italy, June 8-12, 2007.
40. Beyond Parametrics in Interdisciplinary Research, University of South Carolina, Columbia, October 10-12, 2007.
41. International Conference on Statistical Paradigms - Recent Advances and Reconciliations, Indian Statistical Institute, Kolkata, India, January 1-4, 2008.
42. Second University of Maryland Baltimore County Probability and Statistics Day, Baltimore, April 25-26, 2008.
43. Sample Surveys and Bayesian Statistics, Southampton, England, August 26-29, 2008.
44. A Review of Matching Priors. Meeting arranged by Italian Statisticians working on National Research Projects on Statistics. Pula, Sardinia, Italy, May 15-17, 2009.
45. Bayesian Benchmarking in Small Area Estimation. Joint Statistical Meetings. Washington, D.C., USA, August 1-6, 2009.
46. Objective Priors for Hyperparameters in Hierarchical Models. Frontiers of Statistical Decision Making and Bayesian Analysis In Honor of Professor Jim Berger. San Antonio, Texas, March 18-20, 2010.

47. Model selection by testing for the presence of small-area effects in area-level data, International Indian Statistical Association Conference, Raleigh, NC, April 21-24, 2011.
48. Bayesian methodology for spatio-temporal syndromic surveillance, Annual Meeting of Statistical Society of Canada, Wolfville, NS, Canada, June 12-15, 2011.
49. Hierarchical Bayesian modeling in syndromic surveillance. Workshop on Biostatistics and Bioinformatics, Georgia State University, Atlanta, GA, May 4-5, 2012.
50. Benchmarking small area estimators. Symposium Celebrating 75th Birthday of Professor J.N.K. Rao, Fields Institute and Carleton University, Ottawa, Canada May 30 - June 1, 2012.
51. Estimation of small area means under semi-parametric measurement error model, Annual Meeting of Statistical Society of Canada, University of Guelph, ON, Canada, June 3-6, 2012.
52. Estimation of small area means under semi-parametric measurement error model, First Conference of ISNPS, Chalkidiki, Greece, June 15-19, 2012.
53. Estimation of small area means under uncertain random effects model, Italian Statistical Society Biennial Meeting, University of Rome Rome, Italy June 20-22, 2012.

#### SPECIAL INVITED

1. Small Area Estimation in Public Policy: An Overview with Some New Solutions. A public lecture by Cariparo Visiting Scholar arranged by Cariparo Foundation. University of Padua, Italy, June 25, 2009.
2. Recent Developments in Small Area Estimation. A plenary lecture in *Italian Conference on Survey Methodology*, Pisa, Italy, June 27-29, 2011.

#### CONTRIBUTED OR SPECIAL CONTRIBUTED

1. Joint Statistical Meetings, Orlando, August, 1995. (Special Contributed).
2. Joint Statistical Meetings, Chicago, August, 1996. (Special Contributed).
3. Joint Statistical Meetings, Baltimore, August, 1999. (Special Contributed).
4. Joint Statistical Meetings, Indianapolis, August, 2000. (Topic Contributed).
5. Valencia/ISBA Eighth World Meeting on Bayesian Statistics, Benidorm, Spain, June 1-6, 2006. (Poster).
6. Bayesian CAR models for syndromic surveillance on multiple data streams: theory and practice. Twelfth Biennial CDC Symposium on Statistical Methods. Atlanta, USA, April 7-8, 2009.
7. Bivariate Small Area Estimation and Measurement Error Models. First Italian Conference on Survey Methodology. Siena, Italy, June 10-12, 2009. (Special Contributed).
8. Bayesian Benchmarking in Small Area Estimation. SAE2009 Conference on Small Area Estimation. Elche, Spain, June 29 - July 01, 2009.
9. Bayesian Methodology for Spatio-Temporal Syndromic Surveillance. Ninth Valencia International Meeting on Bayesian Statistics 2010 ISBA World Meeting, Benidorm, Spain, June 3-8, 2010. (Poster).
10. Discussion of "Capture-recapture models with matching uncertainty" by Andrea Tancredi, 45th Scientific Meeting of the Italian Statistical Society, Padua, Italy, June 18, 2010.
11. Bayesian methodology for spatio-temporal syndromic surveillance, 13th Biennial CDC Symposium on Statistical Methods, Atlanta, GA, May 24-25, 2011.

12. Estimation of small area means under uncertain random effects model, Joint Statistical Meetings, San Diego, August, 2012. (Topic Contributed).

## COLLOQUIUM TALKS

1. Bayesian prediction in mixed linear models: applications to small area estimation, University of Florida, Gainesville, FL, November, 1989.
2. Bayesian prediction in mixed linear models: applications to small area estimation, Univ. of Georgia, Athens, GA, February 1990.
3. Bayesian prediction in mixed linear models: applications to small area estimation, Purdue Univ., W. Lafayette, IN, February, 1990.
4. Bayesian prediction in mixed linear models: applications to small area estimation, Univ. of Wisconsin, Madison, WI, February, 1990.
5. Bayesian prediction in mixed linear models: applications to small area estimation, Univ. of Minnesota, Twin Cities, MN, February, 1990.
6. Bayesian prediction in mixed linear models: applications to small area estimation, Univ. of Nebraska, Lincoln, NE, February, 1990.
7. A unified Bayesian prediction theory for mixed linear models with applications, Univ. of Florida, Gainesville, FL, December, 1990.
8. A unified Bayesian prediction theory for mixed linear models with applications, Univ. of Georgia, Athens, GA, Winter, 1991.
9. Robust hierarchical Bayes estimation of small area characteristics in presence of covariates, Univ. of Florida, Gainesville, FL, March, 1993.
10. Robust hierarchical Bayes estimation of small area characteristics in presence of covariates, Univ. of Georgia, Athens, GA, Spring, 1993.
11. Noninformative priors, Purdue University, W. Lafayette, IN, October, 1993.
12. Robust hierarchical Bayes estimation of small area characteristics in presence of covariates, Bowling Green State Univ., Bowling Green, OH, November, 1993.
13. Noninformative priors, Univ. of Georgia, Athens, GA, Winter, 1994.
14. Noninformative priors in group models, Univ. of Georgia, Athens, GA, Fall, 1994.
15. Noninformative priors in group models, Univ. of Connecticut, Storrs, CT, Nov., 1994.
16. Small area estimation of unemployment rates for the U.S. states: A hierarchical Bayes approach in time series analysis, Univ. of Georgia, Athens, GA, Winter, 1996.
17. Bayesian prediction in small area estimation: an overview, Stat. Canada, July, 1996.
18. Reference priors, Carleton University, Ottawa, Canada, July, 1996.
19. Noninformative priors: Part I, Univ. of Nebraska, Lincoln, NE, September, 1996.
20. Noninformative priors: Part II, Univ. of Nebraska, Lincoln, NE, September, 1996.
21. Small area estimation: a Bayesian review, Univ. of Maryland-Baltimore County, Catonsville, MD, November, 1997.
22. Empirical Bayes estimation of median income of four-person families by state using time series and cross-sectional data, Iowa State University, Ames, IA, January, 1998.
23. Small area estimation: a review, Univ. of Maryland-College Park, College Park, MD, April, 1998.
24. Noninformative priors: a review, Temple University, Philadelphia, PA, April, 1998.

25. Approximations to mean squared errors of estimated best linear unbiased predictors in small area estimation with an application to median income for the U.S. States, Washington Statistical Society, Washington, DC, July, 1998.
26. Empirical Bayes estimation of median income of four-person families by state using time series and cross-sectional data, Statistical Research Division, Bureau of the Census, Washington, DC, July, 1998.
27. Hierarchical Bayes Estimation of Unemployment Rates for the U.S. States, University of Florida, Gainesville, FL, November, 1998.
28. Asymptotic Comparison of the Usual and the Adjusted Likelihoods, Northern Illinois University, DeKalb, IL, March 6, 2000.
29. Hierarchical Bayes estimation of unemployment rates for the states of the U.S. INSEE, Paris, May 15, 2000.
30. Small area estimation: model-based solutions with applications, University of Nebraska, Lincoln, October 30, 2000.
31. On expected volumes of multidimensional confidence sets associated with the usual and adjusted likelihoods, University of Michigan, Ann Arbor, MI, March 23, 2001.
32. Comparison of a class of adjustments to the profile likelihood with application to inference for ratios of regression coefficients, University of South Carolina, Columbia, SC, September 14, 2001.
33. On expected volumes of multidimensional confidence sets associated with the usual and adjusted likelihoods, University of Florida, Gainesville, FL, July 18, 2002.
34. Likelihood-based confidence sets for the ratios of regression coefficients in linear models, University of Georgia, February 13, 2003.
35. Bayesian approach to survey sampling, University of Mississippi, Oxford, MS, April 22, 2005.
36. A review of Spatial Scan Statistic. Mid-year working group meeting of Anomaly Detection group of NDHS workshop, SAMSI, February 3, 2006, NCHS, MD.
37. Small area estimation: the problem and some solutions, Duke University, March 3, 2006.
38. Bayesian tests for zero-inflated Poisson distributions, University of Georgia, August 31, 2006.
39. Count data, zero-inflation and some Bayesian solutions, University of Missouri-Columbia, October 25, 2006.
40. Probability matching priors: a review, Carleton University, Ottawa, Canada, December 18, 2006.
41. Some Bayesian solutions for zero-inflated Poisson model selection, University of South Carolina, November 20, 2007.
42. Model selection for count data: Poisson or ZIP?, University of Florida, November 29, 2007.
43. Model selection for count data: Poisson or ZIP?, National University of Singapore, December 12, 2007.
44. Some New Developments in Small Area Estimation, University of Southampton, March 7, 2008.
45. Some New Developments in Small Area Estimation, University of Rome La Sapienza, March 13, 2008.
46. Estimation, Prediction and Stein phenomenon under divergence loss, University College of London, March 16, 2008.
47. Model selection for count data, Carleton University, Ottawa, Canada, July 28, 2008.
48. Estimation of small area means under measurement error models, Melbourne University, Australia, October 7, 2008.

49. Bayesian model selection for count data: Poisson or zero-inflated Poisson?, Monash University, Australia, October 10, 2008.
50. Estimation of small area means under measurement error models, University of Maryland, College Park, November 18, 2008.
51. Estimation of small area means under measurement error models, U.S. Bureau of the Census, Washington DC, November 20, 2008.
52. Bayesian benchmarking in small area estimation, University of Maryland Baltimore County, November 21, 2008.
53. Bayesian CAR models for syndromic surveillance on multiple data streams: theory and practice. Department of Statistics, University of Florence, Italy, June 11, 2009.
54. Estimation of small area means under measurement error models. Department of Statistics, University of Milan-Bicocca, Italy, June 18, 2009.
55. Estimation, prediction and the Stein phenomenon under divergence loss. Department of Mathematics, Georgia Institute of Technology, Atlanta, November 12, 2009.
56. Model Selection by Testing for the Presence of Small-Area Effects in Area-Level Data, U.S. Bureau of the Census, Washington DC, May 18, 2010.
57. Bayesian Benchmarking in Small Area Estimation, National Center of Health Statistics, Washington, DC, May 24, 2010.
58. Model selection by testing for the presence of small-area effects in area-level data, Departamento de Estadística, Universidad Carlos III de Madrid, Getafe, Spain, June 10, 2010.
59. On the Development of Matching Priors: A Selective Review, Department of Statistics and Operation Research, Rey Juan Carlos University, Madrid, Spain, June 14, 2010.
60. Model-based approach to small area estimation, Indian Institute of Management, Ahmedabad, India, December 27, 2010.
61. Model selection by testing for the presence of small-area effects in area-level data, Indian Statistical Institute, Kolkata, India, January 6, 2011.
62. Small area estimation in public policy: an overview with some new solutions, Center for Disease Control, Atlanta, GA, May 23, 2011.
63. Model selection by testing for the presence of small-area effects in area-level data, Statistics Canada, Ottawa, Canada, June 10, 2011.
64. Small area shrinkage estimation, University of Padua, Italy, June 23, 2011.
65. Estimation of mean squared error of model-based small area estimators, U.S. Bureau of the Census, Washington DC, August 9, 2011.
66. Benchmarking small area estimators, University of Windsor, Canada, May 28, 2012.

## SEMINAR TALKS

1. Review lecture on model based estimation, small area estimation and finite population sampling. In Professor I.V. Basawa's course, Univ. of Georgia, Athens, GA, Spring, 1993.
2. Bayesian prediction in linear models. In Professor J.O. Berger's seminar course, Purdue Univ., W. Lafayette, IN, Fall, 1993.
3. Robust HB estimation of small area characteristics in presence of covariates. In Professor J.O. Berger's seminar course, Purdue Univ., W. Lafayette, IN, Fall, 1993.
4. Noninformative priors in group models. In Professor J.O. Berger's seminar course, Purdue Univ., W. Lafayette, IN, Fall, 1993.

5. A unified measure of uncertainty of estimated best linear unbiased predictor in small area estimation problems, Brown bag talk at the Bureau of Labor Statistics, Washington, DC, January, 1998.

## PROFESSIONAL ACTIVITIES

### EDITORIAL SERVICE

Associate Editor: Proceedings of the Sixth World Meeting of ISBA, 2000.  
Assistant Editor of Journal of Statistical Planning and Inference, 2004-2006.  
Co-editor of Sankhyā, 2006-2009.  
Associate Editor of Journal of Statistical Planning and Inference, 2007-.  
Associate Editor of TEST, 2009-.  
Associate Editor of Computational Statistics and Data Analysis, 2009-.  
Editorial Board Member of Calcutta Statistical Association Bulletin

### REVIEW ACTIVITIES

Book manuscripts for Springer and Wiley  
Research grant proposals from NSA and NSF  
Served in NSF panel  
Book reviewer for Journal of the American Statistical Association

### REFEREEING ACTIVITIES

Annals of Statistics, Annals of Institute of Statistical Mathematics,  
Bernoulli, Biometrics, Biometrika, Journal of the Royal Statistical Society,  
Journal of the American Statistical Association, Statistica Sinica,  
Survey Methodology, Journal of Multivariate Analysis,  
Statistics and Probability Letters, TEST,  
Journal of Official Statistics, Journal of Applied Statistics,  
Journal of Statistical Planning and Inference, Sankhyā,  
Statistics and Decisions, Communications in Statistics,  
Calcutta Statistical Association Bulletin,  
Journal of Agricultural, Biological and Environmental Statistics

### EXTERNAL EXAMINER

1. Gopaldeb Chattopadhyay, Burdwan University, India, 2004, Ph.D. thesis.
2. Mahmoud Torabi, Carleton University, Canada, 2006, Ph.D. thesis

### OTHER PROFESSIONAL MEETINGS ATTENDED:

1. Young Researchers Writing Workshop in Joint Statistical Meetings, Boston, MA, August, 1992.
2. Invited participant at NSF-CBMS Regional Conference on Bayesian Methods in Finite Population Sampling: Theory and Applications, Storrs, CT, July 10-14, 1994.

3. Participant at GLM Conference, Gainesville, FL, September, 1994.

#### MORE PROFESSIONAL ACTIVITIES:

1. Chaired a session at the 3rd World Meeting of ISBA, Oaxaca, Mexico, September, 1995.
2. Visited Carleton University and Statistics Canada, Ottawa, July 18-26, 1996.
3. Secretary of the Atlanta Chapter of the American Statistical Association, 1996-97.
4. Organized and chaired an invited session at International Conference on Combinatorics, Information Theory and Statistics, Portland, Maine, July 18-20, 1997.
5. IMS Nominating Committee, 1998-99.
6. Organized a special contributed session in 1999 JSM co-sponsored by SBSS of ASA and IMS.
7. Principal Organizer of an AMS Summer Research Conference, July 9-13, 2000, (co-organizers D. Sun, N. Reid, J. Berger, M. Ghosh and E. Slate).
8. Member of the Organizing Committee of the Fourth International Triennial Calcutta Symposium on Probability and Statistics, December 26-28, 2000.
9. Co-chair of the local organizing committee for the Fifth Biennial International Conference of IISA on Statistics, Probability and Related Areas, May 14-16, 2004.
10. Member of the Program Committee of the Fifth Biennial International Conference of IISA.
11. Elected Treasurer of the Risk Analysis Chapter of ASA, 2008.
12. Chaired a plenary session in SAE2009 Conference on Small Area Estimation. Elche, Spain, June 29 - July 01, 2009.
13. Organized an invited session entitled "New Developments in Survey Sampling" in Joint Statistical Meetings, Washington, D.C., 2009.
14. Visiting Scientist in Summer at Census Program, U.S. Bureau of the Census, Washington DC, May 17-21, 2010.
15. Organized an invited session entitled "New developments in disease and syndromic surveillance", Annual Meeting of Statistical Society of Canada, Wolfville, NS, Canada, June 12-15, 2011.
16. Visiting Scientist in Summer at Census Program, U.S. Bureau of the Census, Washington DC, August 8-12, 2011.

#### PROFESSIONAL MEMBERSHIPS

American Statistical Association  
Institute of Mathematical Statistics  
International Society for Bayesian Analysis  
International Statistical Institute  
International Indian Statistical Association  
Calcutta Statistical Association