CENTER FOR STATISTICAL RESEARCH & METHODOLOGY

Research & Methodology Directorate
U.S. Bureau of the Census

Researcher Profiles

April 2024

United States
Census
Bureau

Table of Contents

Serge Aleshin-Guendel
Research Mathematical Statistician

Contact Information

- 301-763-????
- serge.aleshin.guendel@census.gov

Fields of Interest

- Bayesian Statistics
- Record Linkage
- Multiple-Systems Estimation
- Spatio-Temporal Statistics
- Human Rights, Child Mortality Estimation

Education

- Ph.D., Biostatistics, University of Washington, 2022
- B.S., Mathematics, Boston College, 2017
- B.A., Computer Science, Boston College, 2017

Professional Experience

- Research Mathematical Statistician, U.S. Census Bureau, 2023-Present
- Postdoctoral Associate, Duke University, 2022-2023

Selected Publications

- Aleshin-Guendel, S. and Steorts, R. In Press. "Monitoring Convergence Diagnostics for Entity Resolution," *Annual Review of Statistics and Its Applications*.
- Aleshin-Guendel, S., Sadinle, M., and Wakefield, J. In Press. "The Central Role of the Identifying Assumption in Populaton Size Estimation" (with discussion), *Biometrics*.
- Aleshin-Guendel, S. and Sadinle, M. In Press. "Multifile Partitioning for Record Linkage and Duplicate Detection", *Journal of the American Statistical Association.*
- Msemburi M, Karlinsky A, Knutson V, Aleshin-Guendel S, Chatterji S, and Wakefield J. 2023. "The WHO Estimates of Excess Mortality Associated with the COVID-19 Pandemic." *Nature, 613 (7942),* 130-137.
- Kuntson, V., Aleshin-Guendel, S., Karlinsky, A., Msemburi, W., and Wakefield, J. 2023. "Estimating Global and Country-Specific Excess Mortality During the COVID-19 Pandemic", *Annals of Applied Statistics, 17(2)*, 1353-1374.
- Aleshin-Guendel, S., Lange, J., Goodman, P., Weiss, N., and Etzioni, R. (2021). "A Latent Disease Model to Reduce Detection Bias in Cancer Risk Prediction Studies," *Evaluation & the Health Professions, 44 (1),* 42-49.

United States Census Bureau

Emanuel Ben-David
Research Mathematical Statistician

Contact Information

- 301-763-7275
- emanuel.ben.david@census.gov

Fields of Interest

- Graphical & Causal Methods
- Record Linkage
- Statistical and Machine Learning
- Bayesian Statistics

Education

- Ph.D., Statistics, Indiana University, 2008
- M.S., Mathematics, Indiana University, 2004

Professional Experience

- Research Mathematical Statistician, U.S. Census Bureau, 2015-Present
- Term Assistant Professor, Adjunct, Department of Statistics, Columbia University, 2012-Present
- Postdoctoral Research Associate, Department of Statistics, Stanford University, 2010-2012
- Postdoctoral Fellow, Statistical & Applied Mathematical Sciences Institute (SAMSI), 2008-2009

Professional Associations

- The American Statistical Association
- American Association for Public Opinion Research
- Institute of Mathematical Statistics

Selected Publications

- Wang, Z., Ben-David, E., and Slawski, M. 2023. "Regularization for Shuffled Data Problems via Exponential Family Priors on the Permutation Group." (Proceedings of the 26th International Conference on Artificial Intelligence and Statistics), *Proceedings of Machine Learning Research*, Volume 206, pgs 2939-2959. https://proceedings.mlr.press/v206/wang23a.
- Wang, Z., Ben-David, E., Diao, G., & Slawski, M. In Press. "Estimation in Exponential Family Regression Based on Linked Data Contaminated by Mismatch Error," *Statistics and Its Interface*.
- Wang, Z., Ben-David, E., Diao, G., and Slawski, M. 2022. "Regression with Linked Datasets Subject to Linkage Error," *Wiley Interdisciplinary Reviews: Computational Statistics, 14(4),* DOI: 10.1002/wics.1570
- Slawski, Martin, Guoqing Diao, and Emanuel Ben-David. 2021. "A Pseudo-Likelihood Approach to Linear Regression with Partially Shuffled Data." *Journal of Computational and Graphical Statistics*, DOI:10.1080/10618600.2020.1870482 .
- Slawski, M., Ben-David, E., and Li, P. 2020. "Two-Stage Approach to Multivariate Linear Regression with Sparsely Mismatched Data," *Journal of Machine Learning Research, 21*, 1-42.
- Ben-David, E. and Rajaratnam, B. 2020. "On the Letac-Massam Conjecture and Existence of High Dimensional Bayes Estimators for Graphical Models," *Electronic Journal of Statistics, Volume 14, Number 1 (2020), 580-604.*

- Slawski, M. and Emanuel Ben-David. 2019. "Linear Regression with Sparsely Permuted Data." *Electronic Journal of Statistics*, Vol 13, No. 1, 1-36. DOI:10.1214/18-EJS1498 .
- Ben-David, Emanuel. 2015. "Sharp lower and upper bounds for the Gaussian rank of a graph." *Journal of Multivariate Analysis*, 207-218. DOI:https://doi.org/10.1016/j.jmva.2015.03.004 .
- Ben-David, Emanuel, B. Rajaratnam, Tianxi Li, and H. Massam. 2014. "High dimensional Bayesian inference for Gaussian directed acyclic graph models." *Unpublished*.
- Ben-David, Emanuel and B. Rajaratnam. 2012. "Positive Definite Completion Problems for Bayesian Networks." *SIAM Journal on Matrix Analysis and Applications*, Vol 33, No 2, 617-638. DOI:https://doi.org/10.1137/110861051 .
- Ben-David, Emanuel. 2013. "Maximal Invariant Statistics for Lorentz Wishart Models." *Journal of Geometry and Physics*, Vol 69, 31-39.
- Ben-David, Emanuel. 2010. "Some Hypothesis Tests for Wishart Models." *Contemporary Mathematics, American Mathematical Society (AMS)*, Vol 516, 326-345.
- Ben-David, Emanuel. 2008. "Maximal Invariants over Symmetric Cones." *Ph.D. Thesis, Indiana University*, ISBN: 978-0549-91998-8, ProQuest LLC.

Approved on: January 1, 2024

Gauri Datta
Principal Researcher

Contact Information

- 301-763-3426
- gauri.datta@census.gov

Fields of Interest

- Bayesian Statistics
- Small Area Estimation
- Likelihood Inference
- Survey Sampling

Education

- Ph.D., Statistics, University of Florida, 1990
- M.S., Statistics, University of Calcutta, Kolkata, India, 1985
- B.S., Statistics, Ramakrishna Mission R. College, Narendrapur, Kolkata, India, 1983

Professional Experience

- Principal Researcher, Research Mathematical Statistician, U.S. Census Bureau, 2011-Present
- Professor, Statistics, University of Georgia, 2001-Present
- Fellow, The Institute of Mathematical Statistics, 2009
- Distinguished Alumnus Award, Department of Statistics, University of Florida, 2007
- Fellow, The American Statistical Association, 2006
- Elected Member, International Statistical Institute, 1999

Selected Publications

- Datta, G.S. and Li, J. In Press. "A Quasi-Bayesian Approach to Small Area Estimation Using Spatial Models," *Calcutta Statistical Association Bulletin*.
- Datta, G.S., Lee, J., and Li, J. In Press. "Pseudo-Bayesian Small Area Estimation," *Journal of Survey Statistics and Methodology*.
- Ghosh, M., Kubokawa, T., and Datta, G. 2020. "Density Prediction and the Stein Phenomenon," *Sankhya, A, 82,* 330-352.
- Goyal, S., Datta, G., and Mandal, A. 2020. "A Hierarchical Bayes Unit-Level Small Area Estimation Model for Normal Mixture Populations," *Sankhya, B*.
- Datta, Gauri, J.N.K. Rao, and M. Torabi. In Press. "Small Area Estimation with Multiple Covariates Measured with Errors: A Linear Regression Approach of Combining Two Surveys." *Journal of Multivariate Analysis*.
- Chakraborty, A., Gauri Datta, and A. Mandal. In Press. "Robust Hierarchical Bayes Small Area Estimation for Nested Error Regression Model." *International Statistical Review*.
- Datta, Gauri, A. Delaigle, P. Hall, and L. Wang. In Press. "Semi-parametric Prediction Intervals in Small Areas when Auxiliary Data are Measured with Error." *Statistica Sinica*.
- Brown, D. A., Gauri Datta, and N. Lazar. In Press. "A Bayesian Generalized CAR Model for Correlated Signal Detection." *Statistica Sinica*.
- Datta, Gauri and A. Mandal. In Press. "Small Area Estimation with Uncertain Random Effects." *Journal of the American Statistical Association, 110*.

United States Census Bureau

- Chung, H.C., Gauri Datta, and Jerry Maples. 2019. "Estimation of Median Incomes of the American States: Bayesian Estimation of Means of Subpopulations." *in S. Bandyopadhyay and M. Dutta (Eds.), Opportunities and Challenges in Development Essays in Honor of Sarnila Banerjee, Springer Nature*.
- Bell, William R., H.C. Chung, Gauri Datta, and Carolina Franco. 2019. "Measurement Error in Small Area Estimation: Functional Versus Structural Versus Naive Models." *Survey Methodology*, 45, 61-80.
- Klein, Martin and Gauri Datta. 2018. "Statistical Disclosure Control Via Sufficiancy under the Multiple Linear Regression Model." *Journal of Statistical Theory and Practice*, 1211, 100-110.
- Arima, S., Bell, W. R., Datta, G. S., Franco, C., and Liseor, B. 2017. "Multivariate Fay–Herriot Bayesian Estimation of Small Area eans under Functional Measurement Error." *Journal of the Royal Statistical Society—Series A. 180 (4),* pp.1191-1209.
- Bell, William R., Gauri Datta, and Malay Ghosh. 2013. "Benchmarking Small Area Estimators." *Biometrika, 100*, 189-202.
- Datta, Gauri and M. Ghosh. 2012. "Small Area Shrinkage Estimation." *Statistical Science, 27*, 95-114.
- Datta, Gauri, P. Hall, and A. Mandal. 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.
- Datta, Gauri, M. Ghosh, Rebecca Steorts, and Jerry Maples. 2010. "Bayesian Benchmarking with Applications to Small Area Estimation." *TEST*, doi: 1007/sll749-010-0218-y.
- Datta, Gauri, J.N.K. Rao, and M. Torabi. 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.
- Datta, Gauri, J.N.K. Rao, and D. Smith. 2005. "On Measuring the Variability of Small Area Estimators under a Basic Area Level Model." *Biometrika, 92*, 183-196.

Isaac Dompreh
Research Mathematical Statistician

Contact Information

- 301-763-6801
- isaac.dompreh@census.gov

Fields of Interest

- Causal Inference
- Adaptive Design and Response Propensity Models
- Small Area Estimation
- Health Statistics
- Bayesian Statistics

Education

- MPH (Biostatistics), State University of New York (SUNY) at Buffalo, New York, 2014
- M.S. Statistics, George Mason University, Fairfax, Virginia, 2009
- B.S. Applied Math, Statistics and Economics, SUNY at Stony Brook, New York, 2005

Professional Experience

- Research Mathematical Statistician, U.S. Census Bureau, 2008-Present
- Data Analyst, Research Institute on Addictions, SUNY Buffalo, 2005-2007

Professional Associations

- American Statistical Association
- American Public Health Association (APHA)

Selected Publications

- Kang, J., Morris, D.S., Joyce, P., and Dompreh, I. In Press. "On Calibrated Inverse Probability Weighting and Generalized Boosting Propensity Score Models for Mean Estimation with Incomplete Survey Data," *Wiley Interdisciplinary Reviews (WIREs) Computational Statistics*.
- Liu, B., Dompreh, I., and Hartman, A.M. 2021. "Small Area Estimation of Smoke-Free Workplace Policies and Home Rules in U.S. Counties," *Journal of Nicotine and Tobacco Research*.
- Dompreh, Isaac and Liu, Benmei. Final Estimates of Small Area Estimates for Tobacco Use and Policies for 2014/15 data released at National Cancer Institute's website: https://sae.cancer.gov/tus-cps/
- Dompreh, Isaac and Liu, Benmei. 2018. "Small Area Estimation for Measures related to Tobacco Use and Policies using Tobacco Use Supplement to Current Population Surveys." Concurrent session D-1, Hierarchical Bayes Small Area Estimation for Domains Defined by Demography, Geography, or Industry, Federal Committee on Statistical Methodology (FCSM) 2018. https://nces.ed.gov/FCSM/pdf/D_1LiuBFCSM2018.pdf

Approved on: January 1, 2024

United States Census Bureau

Adam Hall
Research Mathematical Statistician
(Census Bureau Postdoctoral Fellow)

Contact Information

- 301-763-2936
- adam.c.hall@census.gov

Fields of Interest

- Econometrics
- Data Science
- Multilevel Models
- Resampling and Computer Intensive Methods

Education

- Ph.D., Statistics, University of Michigan, 2019
- M.A., Statistics, University of Michigan, 2015
- B.A., Sociology, University of California, Irvine, 2011
- B.A., Quantitative Economics, University of California, Irvine, 2011

Professional Experience

- Research Mathematical Statistician (Census Bureau Postdoctoral Fellow), U.S. Census Bureau, 2020-Present

Selected Publications

- Slud, E., Hall, A., and Franco, C. In Press. "Small Area Estimates for Voting Rights Act Section 203(b) Coverage Determinations," *Calcutta Statistical Association Bulletin*.
- Hall, Adam. 2019. "Unified Price Indices for Spatial Comparisons." *Ph.D. Dissertation*, University of Michigan, Ann Arbor.

Approved on: January 1, 2024

United States™ **Census** Bureau

Michael Ikeda

Research Mathematical Statistician
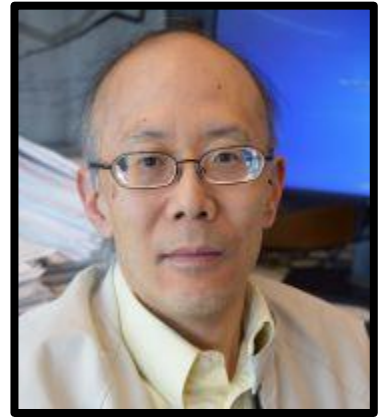
Contact Information

- 301-763-1756
- michael.m.ikeda@census.gov

Fields of Interest

- Survey Research Methods
- Record Linkage
- Missing Data
- Estimation

Education

- Ph.D., Applied Statistics, University of California, Riverside, 1988
- M.S., Statistics, University of California, Riverside, 1984
- B.S., Statistics, University of California, Riverside, 1983

Professional Experience

- Research Mathematical Statistician, U.S. Census Bureau, 1988-Present

Selected Publications

- Cantwell, P. and Michael Ikeda. 2003. "Handling Missing Data in the 2000 Accuracy and Coverage and Evaluation Survey." *Survey Methodology, 29, No. 3*, 139-153.
- Ikeda, Michael and R. Petroni. 1996. "Handling of Missing Data in the 1995 Integrated Coverage Measurement Sample." *Proceedings of the Section on Survey Research Methods of the American Statistical Association*, 563-568.
- Ernst, L. and Michael Ikeda. 1995. "A Reduced-Size Transportation Algorithm for Maximizing the Overlap Between Surveys." *Survey Methodology, 21*, 147-157.
- Ikeda, Michael. 1993. "Comparison of Alternative Family Weighting Methods for the National Health Interview Survey." *Proceedings of the Section on Survey Research Methods of the American Statistical Association*, 770-775.
- Strauss, D. and Michael Ikeda. 1990. "Pseudolikelihood Estimation for Social Networks." *Journal of the American Statistical Association, 85*, 204-212.

Approved on: January 1, 2024

Kyle Irimata
Research Mathematical Statistician

Contact Information

- 301-763-6465
- kyle.m.irimata@census.gov

Fields of Interest

- Small Area Estimation
- Models for Longitudinal Binary Outcome Date
- Analysis of Time-Dependent Covariates

Education

- Ph.D., Statistics, Arizona State University, 2018
- M.S., Statistics, Arizona State University, 2014
- B.S., Mathematics, Arizona State University, 2012

Professional Experience

- Research Mathematical Statistician, U.S. Bureau of the Census, 2018-Present

Professional Associations

- [American Statistical Association](#) ⬆

Selected Publications

- Janicki, R., Holan, S. H., Irimata, K. M., Livsey, J., and Raim, A. In Press. "Spatial Change of Support Models for Differentially Private Decennial Census Counts of Persons by Detailed Race and Ethnicity," *Journal of Statistical Theory and Practice*.
- Irimata, Kyle, Jennifer Broatch, and Jeffrey R. Wilson. 2019. ["Partitioned GMM Logistic Regression Models for Longitudinal Data."](#) ⬆*Statistics in Medicine*, [DOI:10.1002/sim.8099](#) ⬆.
- Irimata, Kyle and Jeffrey R. Wilson. 2017. ["Identifying Intraclass Correlation Necessitating Hierarchical Modeling."](#) ⬆*Journal of Applied Statistics*, 4-5 (4), 626-641.. [DOI:10.1080/02664763.2017.1288203](#) ⬆.
- Irimata, Kyle and Jeffrey R. Wilson. 2017. ["Monte-Carlo Simulation in Modeling for Hierarchical Generalized Linear Mixed Models."](#) ⬆*Monte-Carlo Simulation-Based Statistical Modeling, Springer*, 255-283.
- Lalonde, Trent L., Anh Q. Nguyen, Jianqiong Yin, Kyle Irimata, and Jeffrey R. Wilson. 2013. ["Modeling Binary Outcomes with Time-Dependent Covariates."](#) ⬆*Journal of Data Science*, 11, 715-738.

Ryan Janicki
Principal Researcher

Contact Information

- 301-763-5725
- ryan.janicki@census.gov

Fields of Interest

- Small Area Estimation
- Estimating Functions
- Model Misspecification

Education

- Ph.D., Mathematical Statistics, University of Maryland, College Park, 2009
- B.A., Mathematics, Economics, Brandeis University, 2001

Professional Experience

- Research Mathematical Statistician, U.S. Census Bureau, 2009-Present

Selected Publications

- Parker, P., Holan, S.H., and Janicki, R. 2023. "Comparison of Unit Level Small Area Estimation Modeling Approaches for Survey Data Under Informative Sampling," *Journal of Survey Statistics and Methodology*, Vol 11, No. 4, 858-872.
- Parker, P., Holan, S.H., and Janicki, R. 2023. "A Comprehensive Overview of Unit Level Modeling of Survey Data for Small Area Estimation Under Informative Sampling," *Journal of Survey Statistics and Methodology*, Vol 11, No. 4, 829-857.
- Parker, P., Holan, S.H., and Janicki, R. In Press. "Conjugate Modeling Approaches for Small Area Estimation with Heteroscedastic Structure," *Journal of Survey Statistics and Methodology*.
- Janicki, R., Holan, S. H., Irimata, K. M., Livsey, J., and Raim, A. In Press. "Spatial Change of Support Models for Differentially Private Decennial Census Counts of Persons by Detailed Race and Ethnicity," *Journal of Statistical Theory and Practice.*
- Parker, P. A., Holan, S. H., and Janicki, R. In Press. "Bayesian Unit-Level Modeling of Count Data under Informative Sampling Designs," *Stat*.
- Parker, P.A., Holan, S.H., and Janicki, R. 2022. "Computationally Efficient Bayesian Unit-Level Models for Non-Gaussian Data Under Informative Sampling," *The Annals of Applied Statistics, Vol 16, No. 2,* 887-904.
- Janicki, R., Raim, A.M., Holan, S.H., and Maples, J. 2022. "Bayesian Nonparametric Multivariate Spatial Mixture Mixed Effects Models with Application to American Community Survey Special Tabulations," *The Annals of Applied Statistics, Volume 16, Issue 1, 144-168.*
- Janicki, Ryan. In Press. "Properties of the Beta Regression Model for Small Area Estimation of Proportions with Application to Estimation of Poverty Rates." *Communications in Statistics - Theory and Methods*.
- Janicki, Ryan and A. Vesper. 2017. "Benchmarking Techniques for Reconciling Small Area Models at Distinct Geographic Levels." *Statistical Methods and Applications*.
- Athreya, K.B. and Ryan Janicki. 2016. "On Sums of Powers of Multinomial Probabilities." *Statistics and Probability Letters, 112*, 58-62.
- Janicki, Ryan and Tucker McElroy. 2016. "Hermite Expansion and Estimation of Monotonic Transformations of Guassian Data." *Journal of Nonparametric Statistics*, 28(1): 207-234.

- Janicki, Ryan and D. Malec. 2013. "A Bayesian Model Averaging Approach to Analyzing Categorical Data with Nonignorable Nonresponse." *Computational Statistics and Data Analysis, 57*, 1, 600-614.
- Ma, Yanyuan, J.D. Hart, Ryan Janicki, and R.J. Carroll. 2011. "Local and Omnibus Tests in Classical Measurement Error Models." *Journal of the Royal Statistical Society Series B, 73*, 81-98.
- Janicki, Ryan. 2010. "Estimation and Hypothesis Testing in Submodels Using Fisher Estimating Functions." *Proceedings of the Joint Statistical Meetings*, Alexandria, VA, 4688-4697.
- Janicki, Ryan. 2009. "Statistical Inference Based on Estimating Functions in Exact and Misspecified Models." *Ph.D. Thesis*, University of Maryland, College Park.

Approved on: January 1, 2024

Patrick M. Joyce
Research Mathematical Statistician

Contact Information

- 301-763-6793
- patrick.m.joyce@census.gov

Fields of Interest

- Small Area Methods
- Spatial Statistics
- Sampling
- Bayesian Methods and Applications

Education

- Ph.D., Statistics, University of Connecticut, 2009
- B.S., Mathematics (Statistics Option), University of Massachusetts at Lowell, 2004

Professional Experience

- Research Mathematical Statistician, U.S. Census Bureau, 2009-Present
- Mathematical Statistician (Intern), U.S. Census Bureau, 2008
- Graduate Assistant, University of Connecticut, 2004-2009

Selected Publications

- Kang, J., Morris, D.S., Joyce, P., and Dompreh, I. In Press. "On Calibrated Inverse Probability Weighting and Generalized Boosting Propensity Score Models for Mean Estimation with Incomplete Survey Data," *Wiley Interdisciplinary Reviews (WIREs) Computational Statistics*.
- Joyce, Patrick M., D. Malec, R.J.A. Little, Aaron Gilary, A. Navarro, and M.E. Asiala. 2014. "Statistical Modeling Methodology for the Voting Rights Act Section 203 Language Assistance Determinations." *Journal of the American Statistical Association, 109*, 36-47.
- Joyce, Patrick M., D. Malec, R.J.A. Little, and Aaron Gilary. 2012. "Statistical Modeling Methodology for the Voting Rights Act Section 203 Language Assistance Determinations." *Research Report Series, (Statistics #2012-02)*, Center for Statistical Research and Methodology, U.S. Census Bureau, Washington, D.C.
- Joyce, Patrick M. and D. Malec. 2009. "Population Estimation Using Tract Level Geography and Spatial Information." *Research Report Series, (Statistics #2009-03)*, Center for Statistical Research and Methodology, U.S. Census Bureau, Washington, D.C.

Joseph Kang
Principal Researcher

Contact Information

- 301-763-2467
- joseph.kang@census.gov

Fields of Interest

- Causal inference with observational modeling
- Missing data analysis
- Machine learning methods
- Calibration techniques

Education

- PhD, Statistics, The Pennsylvania State University, 2007

Professional Experience

- Principal Researcher/Mathematical Statistician, U.S. Census Bureau, 2022-Present
- Senior Researcher/Mathematical Statistician, U.S. Census Bureau, 2019- 2022
- Statistics Team Lead, U.S. Centers for Disease Control and Prevention, 2015-2019
- Assistant Professor, Northwestern University, 2008-2015
- Research Associate, The Pennsylvania State University, 2007-2008

Selected Publications

- Kang, J., Morris, D.S., Joyce, P., and Dompreh, I. In Press. "On Calibrated Inverse Probability Weighting and Generalized Boosting Propensity Score Models for Mean Estimation with Incomplete Survey Data," *Wiley Interdisciplinary Reviews (WIREs) Computational Statistics*.
- Joseph Kang, Yulei He, Jaeyoung Hong, Precious Esie, and Kyle T Bernstein. 2019. "Causal Inference of Latent Classes in Complex Survey Data with the Estimating Equation Framework." *Statistics in Medicine, 39(3),* 207–219.
- Lei Liu, Cheng Zheng, and Joseph Kang. 2018. "Exploring Causality Mechanism in the Joint Analysis of Longitudinal and Survival Data." *Statistics in Medicine, 37(26),* 3733–3744.
- Joseph Kang, Jaeyoung Hong, Precious Esie, Kyle T Bernstein, and Sevgi Aral. 2017. "An Illustration of Errors in Using the P Value to Indicate Clinical Significance or Epidemiological Importance of a Study Finding." *Sexually Transmitted Diseases, 44(8),* 495.
- Joseph Kang, Wendy Chan, Mi-Ok Kim, and Peter M Steiner. 2016. "Practice of Causal Inference with the Propensity of Being Zero or One: Assessing the Effect of Arbitrary Cutoffs of Propensity Scores." *Communications for Statistical Applications and Methods, 23(1),* 1.
- Joseph Kang, Christina Czart Ciecierski, Emily L Malin, Allison J Carroll, Marian Gidea, Lynette L Craft, Bonnie Spring, and Brian Hitsman. 2014. "A Latent Class Analysis of Cancer Risk Behaviors Among U.S. College Students." *Preventive Medicine, 64,* 121–125.
- Joseph Kang, Xiaogang Su, Lei Liu, and Martha L Daviglus. 2014. "Causal Inference of Interaction Effects with Inverse Propensity Weighting, G-Computation and Tree-Based Standardization." *Statistical Analysis and Data Mining: The ASA Data Science Journal, 7(5),* 323–336.
- Xiaogang Su, Joseph Kang, Juanjuan Fan, Richard A Levine, and Xin Yan. 2012. "Facilitating Score and Causal Inference Trees for Large Observational Studies." *Journal of Machine Learning Research, 13,* 2955.

United States Census Bureau

- Joseph Kang, Xiaogang Su, Brian Hitsman, Kiang Liu, and Donald Lloyd-Jones. 2012. "Tree-Structured Analysis of Treatment Effects with Large Observational Data." *Journal of Applied Statistics, 39(3),* 513–529.
- Joseph L Schafer and Joseph Kang. 2008. "Average Causal Effects from Nonrandomized Studies: A Practical Guide and Simulated Example." *Psychological Methods*, 13(4), 279.
- Joseph Kang and Joseph L Schafer. 2007. "Demystifying double robustness: A Comparison of Alternative Strategies for Estimating a Population Mean from Incomplete Data." *Statistical Science*, 523–539.

Approved on: January 1, 2024

Soumendra N. Lahiri

Principal Researcher

Contact Information

- 301-763-2701
- soumendra.lahiri@census.gov

Fields of Interest

- Resampling and Computer Intensive Methods
- Financial Statistics and Econometrics
- Spatial and Environmental Statistics
- Asymptotic Expansions

Education

- Ph.D., Statistics, Michigan State University, 1989
- M.Stat, Statistics, Indian Statistical Institute, Calcutta, India, 1986
- B.Stat, Statistics, Indian Statistical Institute, Calcutta, India, 1984

Professional Experience

- Principal Researcher, U.S. Census Bureau, 2016-Present
- Distinguished Professor of Statistics, NC State University, 2014-Present
- Honorary Visiting Professorship, London School of Economics, U.K., 2013-2016
- Professor, Department of Statistics, NC State University, 2012-2014
- Professor, Department of Statistics, Department of Mathematics (Courtesy), Texas A&M University, 2006-2012
- Professor, Department of Statistics, Iowa State University, 1989-2006

Professional Associations

- Elected Member, International Statistical Institute, 2005
- Fellow, American Statistical Association, 2002
- Fellow, Insitute of Mathematical Statistics, 2001

Selected Publications

- McElroy, T., Ghosh, D., and Lahiri, S. 2023. "Quadratic Prediction of Time Series via Autocumulants," *Sankhya A*, published online.
- Lahiri, Soumendra N. and P.M. Robinson. 2016. "Central Limit Theorems for Long Range Dependent Spatial Linear Processes." *Bernoulli bf, 22*, 345-375.
- Akritas, M., Soumendra N. Lahiri, and D. Politis. 2015. *Proceedings of the First Conference of the International Society of Nonparametric Statistics.* Springer-Verlag, Inc: New York.
- Gregory, K., R.J. Carroll, V. Baladandayuthapani, and Soumendra N. Lahiri. 2015. "A Two Sample Test for Equality of Means in High Dimension." *Journal of the American Statistical Association, 110*, 837-849.
- Chatterjee, A., S. Gupta, and Soumendra N. Lahiri. 2015. "On the Residual Empirical Process Based on the ALASSO in High Dimensions and Its Functional Oracle Property." *Journal of Econometrics, 186*, 317-324.
- Staicu, A.M., Soumendra N. Lahiri, and R.J. Carroll. 2015. "Signicance Tests for Functional Data with Complex Dependence Structure." *Journal of Statistical Planning and Inference, 156*, 1-13.

- Gregory, K., Soumendra N. Lahiri, and D. Nordman. 2015. "A Smooth Block Bootstrap for Statistical Functionals and Time Series." *Journal of Time Series Analysis, 36*, 442-461.
- Bandopadhyay, S., Soumendra N. Lahiri, and D. Nordman. 2015. "A Frequency Domain Empirical Likelihood Method for Irregularly Spaced Spatial Data." *Annals of Statistics, 43*, 519-545.
- Chatterjee, A. and Soumendra N. Lahiri. 2015. "Discussion of the paper: An Adaptive Resampling Test for Detecting the Presence of Significant Predictors by I.W. McKeague and M. Qian." *Journal of the American Statistical Association, 110*, 1434-1438.
- DasGupta, A., Soumendra N. Lahiri, and J. Stoyanov. 2014. "Sharp Fixed n Bounds and Asymptotic Expansions for the Mean and the Median of a Gaussian Sample Maximum, and Applications to Donoho-Jin Model." *Statistical Methodology (Kesar Singh Memorial Volume), 20*, 40-62.
- Lahiri, Soumendra N., A. Schick, A. SenGupta, and T.N. Sriram. 2014. *Advances in Robust and Nonparametric Statistics--A Feschrift in honor of Hira L. Koul.* Springer-Verlag, Inc: New York.
- Nordman, D. and Soumendra N. Lahiri. 2014. "A Review of Empirical Likelihood Methods for Time Series." *Journal of Statistical Planning and Inference, 155*, 1-18.
- Nordman, D. and Soumendra N. Lahiri. 2014. "Convergance Rates of Empirical Block Length Selectors for Block Bootstrap." *Bernoulli, 20*, 958-978.
- Gupta, S. and Soumendra N. Lahiri. 2014. "Discussion of the paper: Estimation and Accuracy after Model Selection by B. Efron." *Journal of the American Statistical Association, 109*, 1013-1015.
- Kim, Y.M., Soumendra N. Lahiri, and D. Nordman. 2013. "A Progressive Block Empirical Likelihood For Time Series." *Journal of the American Statistical Association, 108*, 1506-1516.
- Rister, K. and Soumendra N. Lahiri. 2013. "Bootstrap Based Trans-Gaussian Kriging." *Statistical Modeling (Special Issue on the Proceedings of the 4th Lehman Symposium), 13*, 509-539.
- Chatterjee, A. and Soumendra N. Lahiri. 2013. "Rates of Convergence of the Adaptive Lasso Estimators to the Oracle Distribution and Higher Order Refinements by the Bootstrap." *Annals of Statistics, 41*, 1232-1259.
- Nordman, D., H. Bunzel, and Soumendra N. Lahiri. 2013. "A Nonstandard Empirical Likelihood for Time Series." *Annals of Statistics, 41*, 3050-3073.
- Maitra, R., V. Melnykov, and Soumendra N. Lahiri. 2012. "Bootstrapping for Significance of Compact Clusters in Multi-dimensional Datasets." *Journal of the American Statistical Association, 107*, 378-392.
- Kaiser, M.S., Soumendra N. Lahiri, and D. Nordman. 2012. "A Goodness of Fit Test for Conditionally Specified Spatial Models and its Asymptotic Properties." *Annals of Statistics, 40*, 104-130.
- Nordman, D. and Soumendra N. Lahiri. 2012. "Block Bootstraps for Time Series with Fixed Regressors." *Journal of the American Statistical Association, 107*, 233-246.
- Kreiss, J-P and Soumendra N. Lahiri. 2012. "Bootstrap Methods for Time Series." In *Handbook of Statistics, Vol. 30*, ed. T. Subba Rao, S. Subba Rao, and C.R. Rao, 3-26.
- DasGupta, A. and Soumendra N. Lahiri. 2012. "Density Estimation in High and Ultra High Dimensions, Regularization, and the L1 Asymptotics." *IMS Lecture Notes-Vol. 8 (A Feschrift for William E. Strawderman)*, 1-23.
- Lahiri, Soumendra N., C. Spiegelman, J. Appiah, and L. Rilett. 2012. "Gap Bootstrap Methods for Massive Data Sets with an Application to Transportation Engineering." *Annals of Applied Statistics, 6*, 1552-1587.
- Lahiri, Soumendra N., X-L Nguyen, J. Yang, Z. Zhu, and P. Banerjee. 2012. "Wireless Sensor Networks: Statistical Issues and Challenges." *Journal of the Indian Statistical Association, 50*, 151-191.
- Athreya, K.B. and Soumendra N. Lahiri. 2006. *Measure Theory and Probability Theory.* Springer-Verlag, Inc: New York.
- Lahiri, Soumendra N. 2003. *Resampling Methods for Dependent Data.* Springer-Verlag, Inc: New York.

United States
Census
Bureau

James Livsey

Principal Researcher
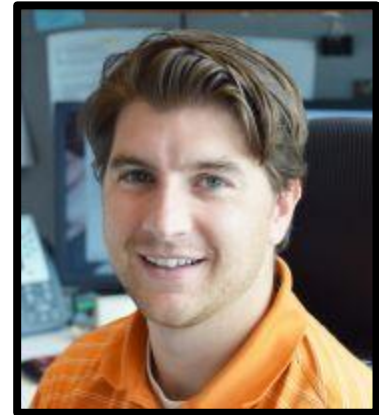
Contact Information

- 301-763-3517
- james.a.livsey@census.gov

Fields of Interest

- Count Time Series
- Point Processes
- Seasonal Adjustment

Education

- Ph.D., Mathematical Sciences, Clemson University, 2013
- M.S., Mathematical Sciences, Clemson University, 2010
- B.S., Mathematics & Mathematics Education, SUNY-Fredonia, 2008

Professional Experience

- Principal Researcher, U.S. Census Bureau, 2013-Present
- Adjunct Professor, Department of Statistics, George Washington University, 2013-Present

Selected Publications

- Janicki, R., Holan, S. H., Irimata, K. M., Livsey, J., and Raim, A. In Press. "Spatial Change of Support Models for Differentially Private Decennial Census Counts of Persons by Detailed Race and Ethnicity," *Journal of Statistical Theory and Practice.*
- Jia, Y., Kechagias, S., Livsey, J., Lund, R., Pipiras, V. 2021. "Latent Gaussian Count Time Series Modelling," *Journal of the American Statistical Association.*
- Davis, R.A., Fokianos, K., Holan, S., Joe, H., Livsey, J., Lund, R.B., Pipiras, V., and Ravishanker, N. In Press. "Count Time Series: A Methodological Review," *Journal of the American Statistical Association*.
- McElroy, T., Roy, A., Livsey, J., Firestine, T., and Notis, K. 2021. "Anticipating Revisions in the Transportation Services Index," *Journal of the International Association of Official Statistics*, 37, 641-653.
- Woody, J., Lu, Q., and Livsey, J. 2020. "Statistical Methods for Forecasting Daily Snow Depths and Assessing Trends in Inter-Annual Snow Depth Dynamics," *Environmental and Ecological Statistics, 27, 3,* 609-628.
- Jia, Y., Lund, R., and Livsey, J. 2019. "Superpositional Stationary Count Time Series," *Probability in the Engineering and Informational Sciences*, 1-19, doi:10.1017/50269964819000433.
- Carden, S. and James Livsey. In Press. "Improved Policies Using Synthetic Data In Reinforcement Learning Algorithms." *Intelligent Decision Technologies*.
- Livsey, James, R. Lund, S. Kechagias, and V. Pipiras. 2018. "Multivariate Integer-valued Time Series with Flexible Autocovariances and Their Application to Major Hurricane Counts." *Annals of Applied Statistics*, 12(1), 408-431.
- Lund, R. and James Livsey. 2015. "Renewal Based Count Time Series." In *Handbook of Discrete-valued Time Series*, ed. Davis, R., Holan, S., Lund, R., and Ravishanker, N., New York: Chapman & Hall/CRC Press.
- Lund, R., S. Holan, and James Livsey. 2015. "Long Memory Discrete-valued Time Series." In *Handbook of Discrete-valued Time Series*, ed. Davis, R., Holan, S., Lund, R., and Ravishanker, N., New York: Chapman & Hall/CRC Press.

- Livsey, James, Osbert Pang, and Tucker McElroy. 2014. "Effect of Trading Day Regressors on Seasonal Adjustment of Growth Rates." Research Report Series, Statistics #2014-09.
- Fralix, B., James Livsey, and R. Lund. 2011. "Renewal Processes with Periodic Dynamics." *Probability in the Engineering and Informational Sciences, 26*, 1-15.

Approved on: January 1, 2024

United States™
Census
Bureau

Xiaoyun Lu

Research Mathematical Statistician

Contact Information

- 301-763-5395
- xiaoyun.lu@census.gov

Fields of Interest

- Discrete Mathematics
- Editing
- Optimization Methods

Education

- Ph.D., Mathematics, Rutgers University, 1992
- M.S., Computer Science, University of Illinois at Urbana-Champaign, 1995
- M.S., Applied Mathematics, Institute of Applied Mathematics, Academia Sinica, Beijing, China, 1984
- B.S., Mathematics, Jiangxi University of Science and Technology, 1982

Professional Experience

- Research Mathematical Statistician, (IT Specialist, 2005-2015), U.S. Census Bureau, 2015-Present
- Principal Computer Analyst, RS Information System, 2001-2005
- Senior Software Engineer, nthOrbit, 2001
- Senior Software Engineer, Lantern Communications, 2000-2001
- Senior Software Engineer, Saltare.com, 1999-2000
- Software Engineer, Synnex Information Technology Inc., 1998-1999
- Post Doctor, The Chinese University of Hong Kong, 1996-1998
- Visiting Assistant Professor, University of Illinois at Urbana-Champaign, 1992-1994

Selected Publications

- Lu, Xiaoyun. 2019. "A Note on Min-Max Pair in Tournaments." *Graphs and Combinatorics*, 35, 1139-1145.
- Lu, Xiaoyun. 2018. "On Min-max Pair in Tournaments." *Journal of Graphs and Combinatorics*, 34, 613-618.
- Lu, Xiaoyun and D. West. 2016. "A New Proof that 4-connected Planar Graphs are Hamiltonian-connected." *Discussiones Mathematicae Graph Theory, 36*, 555-564.
- Lu, Xiaoyun. 2011. "A Note on Barnette's Conjecture." *Discrete Mathematics, 311*, 2711-2715.
- Lu, Xiaoyun. 2010. "A Note on 3-connected Cubic Planar Graphs." *Discrete Mathematics, 310*, 2054-2058.
- Lu, Xiaoyun, Da-Wei Wang, Jiaofeng Pan, and C.K. Wong. 2000. "On Rooted Spanning Trees in Tournaments." *Graphs and Combinatorics, 16*, 411-427.
- Lu, Xiaoyun, Da-Wei Wang, and C.K. Wong. 2000. "On the Bounded Domination Number of Tournaments." *Discrete Mathematics, 220*, 257-261.
- Lu, Xiaoyun, Da-Wei Wang, Gerard J. Chang, In-Jen Lin, and C.K. Wong. 1999. "On the Spanning K-ary Trees of Tournaments." *Journal of Graph Theory, 30*, 167-176.
- Lu, Xiaoyun, Da-Wei Wang, and C.K. Wong. 1999. "The Strong Hall Property and Symmetric Chain Orders." *Discrete Mathematics, 203*, 161-168.
- Lu, Xiaoyun, Da-Wei Wang, and C.K. Wong. 1998. "On Avoidable and Unavoidable Claws." *Discrete Mathematics, 184 (1-3)*, 259-265.

- Chen, Guantao, Xiaoyun Lu, and Douglas B. West. 1998. "Star Factors of Tournaments." *Journal of Graph Theory, 28*, 141-145.
- Lu, Xiaoyun. 1996. "On Avoidable and Unavoidable Trees." *Journal of Graph Theory, 22 (4)*, 335-346.
- Lu, Xiaoyun. 1995. "Edge-density and Hamiltonian Cycles for Bipartite Graphs." *Combinatorica, 15 (2)*, 247-254.
- Lu, Xiaoyun. 1995. "Hamiltonian Games on Complete Bipartite Graphs." *Discrete Mathematics, 142*, 185-191.
- Lu, Xiaoyun. 1995. "A Note on Biased and Non-biased Games." *Discrete Applied Mathematics, 60*, 285-291.
- Lu, Xiaoyun. 1994. "A Chvatal-Erdos Type Condition for Hamiltonian Graphs." *Journal of Graph Theory, 18 (8)*, 791-800.
- Lu, Xiaoyun. 1993. "Claws Contained in all N-tournaments." *Discrete Mathematics, 119*, 107-111.
- Lu, Xiaoyun. 1992. "Hamiltonian Games." *Journal of Combinatorial Theory, B, 55*, 18-32.
- Lu, Xiaoyun. 1992. "A Characterization of N-critical Economical Generalized Tic-tac-toe Games." *Discrete Mathematics, 110*, 197-203.
- Lu, Xiaoyun. 1991. "Claws Belonging to Every Tournament." *Combinatorica, 11 (2)*, 173-179.
- Lu, Xiaoyun. 1991. "A Matching Game." *Discrete Mathematics, 94*, 199-207.
- Zheng, Maolin and Xiaoyun Lu. 1990. "On the Maximum Induced Forest in a Connected Cubic Graph without Triangles." *Discrete Mathematics, 85*, 89-96.
- Lu, Xiaoyun. 1986. "An Avoidance Hamiltonian Path Game." *Journal of Mathematical Research and Exposition, 1*, 135-139.

Approved on: February 27, 2020

Shane Lubold

Research Mathematical Statistician

Contact Information

- 301-763-????
- shane.lubold@census.gov

Fields of Interest

- Causal Inference
- Network Analysis
- Sample Survey Design

Education

- Ph.D., Statistics, University of Washington, 2023
- B.S., Mathematics, Arizona State University, 2016

Professional Experience

- Research Mathematical Statistician, U.S. Census Bureau, 2023-Present

Selected Publications

- Breza, E., Chandrasekhar, A., Lubold, S., McCormick, T., and Pan, M. 2023. "Consistently Estimating Network Statistics Using Aggregated Relational Data", *Proceedings of the National Academy of Sciences 120 (21), e2207185120.*
- Lubold, S., Chandrasekhar, A., and McCormick, T. 2023. "Identifying the Latent Space Geometry of Network Models through Curvature", *Journal of the Royal Statistical Society, Series B, Vol 85, 2, 240-292.*
- Lubold, S. and Taylor, C. 2022. "Formal Definitions of Conservative Probability Distribution Functions (PDFs)", *Information Fusion, 88,* 175-183.

Jerry Maples
Principal Researcher

Contact Information

- 301-763-2873
- jerry.j.maples@census.gov

Fields of Interest

- Small Area Estimation
- Random Effects Models
- Binary Responses
- Variance Estimation

Education

- Ph.D., Statistics, The Pennsylvania State University, 2002
- M.S., Statistics, The Pennsylvania State University, 1998
- B.S., Statistics and Computer Science (magna cum laude), University of Southwestern Louisiana, 1996

Professional Experience

- Principal Researcher, Research Mathematical Statistician, U.S. Census Bureau, 2002-Present

Professional Associations

- [American Statistical Association](#) ➥

Selected Publications

- Ghosh, T., Ghosh, M., Maples, J., and Tang, X. 2022. "Multivariate Global-Local Priors for Small Area Estimation," *STATS, v5*, 673-688. https://www.mdpi.com/2571-905X/5/3/40/htm.
- Janicki, R., Raim, A.M., Holan, S.H., and Maples, J. 2022. "Bayesian Nonparametric Multivariate Spatial Mixture Mixed Effects Models with Application to American Community Survey Special Tabulations," *The Annals of Applied Statistics, Volume 16, Issue 1, 144-168.*
- Maples, Jerry. In Press. "Improving Small Area Estimates of Disability: Combining the American Community Survey with the Survey of Income and Program Participation." *Journal of the Royal Statistical Society--Series A.*
- O-Hara, B., C. Medalia, and Jerry Maples. 2019. "Modeling a Bridge When Survey Questions Change: Evidence from the Current Population Survey Health Insurance Redesign." *Journal of Official Statistics*, Vol. 35, Issue 1, 189-202.
- Chung, H.C., Gauri Datta, and Jerry Maples. 2019. "Estimation of Median Incomes of the American States: Bayesian Estimation of Means of Subpopulations." *in S. Bandyopadhyay and M. Dutta (Eds.), Opportunities and Challenges in Development Essays in Honor of Sarnila Banerjee, Springer Nature*.
- Bell, William R., W.W. Basel, and Jerry Maples. 2016. "An Overview of the U.S. Census Bureau's Small Area Income and Poverty Estimates (SAIPE) Program." In *Analysis of Poverty Data by Small Area Methods*, ed. Ch. 15, Ed. Pratesi, M., London: Wiley.
- Maples, Jerry. 2012. "An Examination of the Relative Variance of Replicate Weight Variance Estimators of Ratios through First Order Expansions." *2012 Proceedings of the Joint Statistical Meetings (ASA Section on Survey Research Methods)*, Alexandria, VA, 4067-4077.

- Datta, Gauri, M. Ghosh, Rebecca Steorts, and Jerry Maples. 2010. "Bayesian Benchmarking with Applications to Small Area Estimation." *TEST*, doi: 1007/sll749-010-0218-y.
- Maples, Jerry, William R. Bell, and E. Huang. 2009. "Small Area Variance Modeling with Application to County Poverty Estimates from the American Community Survey." *2009 Proceedings of the Joint Statistical Meetings (ASA Section on Survey Research Methods)*, Alexandria, VA, 5056-5067.
- Malec, D. and Jerry Maples. 2008. "Small Area Random Effects Models for Capture/Recapture Methods with Applications to Estimating Coverage Error in the U.S. Decennial Census." *Statistics in Medicine, 27*, 4038-4056.
- Huang, E., D. Malec, Jerry Maples, and L. Weidman. 2006. "American Community Survey Variance Reduction of Small Area via Coverage Adjustment Using an Administrative Records Match." *Proceedings of the American Statistical Association*, 3150-3152.
- Maples, Jerry and William R. Bell. 2005. "Evaluation of School District Poverty Estimates: Predictive Models Using IRS Income Tax Data." *Proceedings of the American Statistical Association*, 1322-1329.
- Maples, Jerry, S. Murphy, and W. Axinn. 2002. "Two Level Proportional Hazards Models." *Biometrics, v 58*.
- Barber, J., S. Murphy, W. Axinn, and Jerry Maples. 2000. "Discrete-Time Multilevel Hazard Analysis." *Sociological Methodology, 30*, 201-235.

Thomas Mathew

Principal Researcher

Contact Information

- 301-763-5337
- thomas.mathew@census.gov

Fields of Interest

- Theoretical and Applied Statistics

Education

- Ph.D., Statistics, Indian Statistical Institute, 1983
- M.S., Statistics, University of Kerala, India, 1978
- B.S., Mathematics, University of Kerala, India, 1976

Professional Experience

- Principal Researcher, Research Mathematical Statistician, U.S. Census Bureau, 2009-Present
- Professor, University of Maryland Baltimore County, 1985-Present
- Presidential Research Professor, University of Maryland Baltimore County, 2008-2011
- Fellow, American Statistical Association, 2001
- Fellow, Institute of Mathematical Statistics, 1998

Selected Publications

- Raim, A.M., Nichols, E., and Mathew, T. 2023. "A Statistical Comparison of Call Volume Uniformity Due to Mailing Strategy," *Journal of Official Statistics*, 39, 103-121.
- Raim, A.M., Mathew, T., Sellers, K. F., Ellis, R., and Meyers, M. 2023. "Design and Sample Size Determination for Experiments on Nonresponse Follow-up using a Sequential Regression Model," *Journal of Official Statistics*, 39(2), 173-202.
- Lucagbo, M., Mathew, T., and Young, D. 2023. "Rectangular Multivariate Normal Prediction Regions for Setting Reference Regions in Laboratory Medicine," *Journal of Biopharmaceutical Statistics*, 33(2), 191-209.
- Lucagbo, M. and Mathew, T. 2023. "Rectangular Tolerance Regions and Multivariate Normal Reference Regions in Laboratory Medicine," *Biometrical Journal*, 65(3).
- Arsham, A., Bebu, I., and Mathew, T. 2023. "Cost-Effectiveness Analysis Under Multiple Effectiveness Outcomes: A Probabilistic Approach," *Statistics in Medicine*, 42, 3936-3955.
- Rivas, A., Antoun, C., Feuer, S., Mathew, T., Nichols, E., Olmsted-Hawala, E. and Wang, L. 2022, "Comparison of Three Navigation Button Designs in Mobile Survey for Older Adults," *Survey Practice, 15(1)*.
- Lucagbo, M. and Mathew, T. 2022. "Rectangular Confidence Regions and Prediction Regions in Multivariate Calibration*," Journal of the Indian Society for Probability and Statistics, 23*, 155–171.
- Arsham, A., Bebu, I., and Mathew, T. 2022. "A Bivariate Regression-Based Cost-Effectiveness Analysis," *Journal of Statistical Theory and Practice*, 16, Article No. 27.
- Feng, X., Mathew, T, and Adragni, K. 2021. "Interval Estimation of the Intra-class Correlation in General Linear Mixed Effects Models," *Journal of Statistical Theory and Practice, 15, Article 65*.
- Zimmer, Z., Park, D., and Mathew, T. 2021. "Tolerance Limits under Zero-Inflated Lognormal and Gamma Distributions," *Computational and Mathematical Methods*, *Special issue on Statistics,* 3. DOI: 10.1002/cmm4.1113
- Zhao, J., Mathew, T., and Bebu, I. 2021. "Accurate Confidence Intervals for Inter-Laboratory Calibration and

Common Mean Estimation," *Chemometrics and Intelligent Laboratory Systems*, 208. DOI: 10.1016/j.chemolab.2020.104218

- Young, D. and Mathew, T. 2020. "Nonparametric Hyper-rectangular Tolerance and Prediction Regions for Setting Multivariate Reference Regions in Laboratory Medicine," *Statistical Methods in Medical Research*, *29*, 3569-3585.
- Edirisinghe, P., Mathew, T., and Peiris, T.S.G 2020. "Confidence Limits for Compliance Testing Using Mixed Acceptance Criteria," *Quality and Reliability Engineering International*, 36, 1197-1204.
- Zhao, J. and Thomas Mathew. Forthcoming. "Some Point Estimates and Confidence Regions for Multivariate Inter-Laboratory Data Analysis." *Sankhya*.
- Yang, Y. and Thomas Mathew. 2018. "The Simultaneous Assessment of Normality and Homoscedasticity in Linear Fixed Effects Models." *Journal of Statistical Theory and Practice*, 12:1, 66-81.
- Young, D. and Thomas Mathew. 2015. "Ratio Edits Based on Statistical Tolerance Intervals." *Journal of Official Statistics, 31*, 77-100.
- Mbodj, M. and Thomas Mathew. 2015. "Approximate Ellipsoidal Tolerance Regions for Multivariate Normal Populations." *Statistics and Probability Letters, 97*, 41-45.
- Dong, X. and Thomas Mathew. 2015. "Central Tolerance Regions and Reference Regions for Multivariate Normal Populations." *Journal of Multivariate Analysis, 134*, 50-60.
- Sharma, G., Thomas Mathew, and I. Bebu. 2014. "Combining Multivariate Bioassays: Accurate Inference Using Small Sample Asymptotics." *Scandinavian Journal of Statistics, 41*, 152-166.
- Klein, Martin, Thomas Mathew, and Bimal Sinha. 2014. "Noise Multiplication for Statistical Disclosure Control of Extreme Values in Log-Normal Regression Samples." *Journal of Privacy and Confidentiality, 6*, 77-125.
- Zimmer, Z., D. Park, and Thomas Mathew. 2014. "Point-wise and Simultaneous Tolerance Limits under Logistic Regression." *Technometrics, 56*, 282-290.
- Young, D. and Thomas Mathew. 2014. "Improved Nonparametric Tolerance Intervals Based on Interpolated and Extrapolated Order Statistics." *Journal of Nonparametric Statistics, 26*, 415-432.
- Krishnamoorthy, K., Thomas Mathew, and Zhao Xu. 2014. "Comparison of Means of Two Lognormal Distributions Based on Samples with Multiple Detection Limits." *Journal of Occupational and Environmental Hygiene, 11*, 538-546.
- Young, Derek and Thomas Mathew. 2013. "Fiducial-Based Tolerance Intervals for Some Discrete Distributions." *Computational Statistics and Data Analysis, 61*, 38-49.
- Gamage, J., Thomas Mathew, and S. Weerahandi. 2013. "Generalized Prediction Intervals for BLUPs in Mixed Models." *Journal of Multivariate Analysis, 120*, 226-233.
- Sharma, G. and Thomas Mathew. 2012. "One-sided and Two-sided Tolerance Intervals in General Mixed and Random Effects Models Using Small Sample Asymptotics." *Journal of the American Statistical Association, 107*, 258-267.
- Krishnamoorthy, K., A. Mallick, and Thomas Mathew. 2011. "Inference for the Lognormal Mean and Quantiles Based on Samples with Left and Right Type I Censoring." *Technometrics, 53*, 72-83.
- Sharma, G. and Thomas Mathew. 2011. "Higher Order Inference for the Consensus Mean in Inter-laboratory Studies." *Biometrical Journal, 53*, 128-136.
- Mathew, Thomas and K. Nordstrom. 2010. "Comparison of One-step and Two-step Meta-analysis Models Using Individual Patient Data." *Biometrical Journal, 52*, 271-287.
- Krishnamoorthy, K. and Thomas Mathew. 2009. *Statistical Tolerance Regions: Theory, Applications, and Computation.* John Wiley, New York.
- Krishnamoorthy, K., Thomas Mathew, and S. Mukherjee. 2008. "Normal Based Methods for a Gamma Distribution: Prediction and Tolerance Intervals and Stress-Strength Reliability." *Technometrics, 50*, 69-78.
- Mathew, Thomas and Yanping Wu. 2008. "Pilot-Pivotal Trials for Average Bioequivalence." *Journal of Statistical Planning and Inference, 138*, 2106-2116.
- Bebu, I. and Thomas Mathew. 2008. "Comparing the Means and Variences of a Bivariate Log-Normal Distribution." *Statistics in Medicine, 14*, 2684-2696.
- Cao, L. and Thomas Mathew. 2007. "The Subject-by-Formulation Interaction in Multivariate Bioequivalence." *Journal of Biopharmaceutical Statistics, 17*, 367-379.
- Roy, A. and Thomas Mathew. 2005. "A Generalized Confidence Limit for the Reliability Function of a Two Parameter Exponential Distribution." *Journal of Statistical Planning and Inference, 128*, 509-517.
- Mathew, Thomas and D. Webb. 2005. "Generalized P-Values and Confidence Intervals for Variance Components: Applications to Army Test and Evaluation." *Technometrics, 47*, 312-322.

- Iyer, H., J.M. Wang, and Thomas Mathew. 2004. "Models and Confidence Intervals for True Values in Interlaboratory Trials." *Journal of the American Statistical Association, 99*, 1060-1071.
- Krishnamoorthy, K. and Thomas Mathew. 2004. "Generalized Confidence Limits and One-Sided Tolerance Limits in Balanced and Unbalanced One-Way Random Models." *Technometrics, 46*, 44-52.
- McNally, R., H. Iyer, and Thomas Mathew. 2003. "Tests for Individual and Population Bioequivalence Based on Generalized P-Values." *Statistics in Medicine, 22*, 31-53.
- Benton, D., K. Krishnamoorthy, and Thomas Mathew. 2003. "Inferences in Multivariate-Univariate Calibration." *Journal of the Royal Statistical Society, Series D, 52*, 15-39.
- Krishnamoorthy, K. and Thomas Mathew. 2002. "Assessing Occupational Exposure Via the One-Way Random Model with Balanced Data." *Journal of Agricultural, Biological, and Environmental Statistics, 7*, 440-457.
- Krishnamoorthy, K. and Thomas Mathew. 1999. "Comparison of Approximation Methods for Computing Tolerance Factors for Mulivariate Normal Populations." *Technometrics, 41*, 234-249.
- Mathew, Thomas and K. Nordstrom. 1999. "On the Equivalence of Meta-Analysis Using Literature and Using Individual Patient Data." *Biometrics, 55*, 1221-1223.
- Mathew, Thomas, M.K. Sharma, and K. Nordstrom. 1999. "Tolerance Regions and Multiple Use Confidence Regions in Multivariate Calibration." *The Annals of Statistics, 26*, 1989-2013.
- Mathew, Thomas and K. Nordstrom. 1997. "Inequalities for the Probability Content of a Rotated Ellipse and Related Stochastic Domination Results." *The Annals of Applied Probability, 7*, 1106-1117.

United States Census Bureau

Darcy Steeg Morris

Principal Researcher

Contact Information

- 301-763-3989
- darcy.steeg.morris@census.gov

Fields of Interest

- Generalized Linear (Mixed) Models
- Longitudinal Data Analysis
- Multivariate Statistics
- Missing Data Methods

Education

- Ph.D., Statistics, Cornell University, 2012
- M.S., Statistics, The George Washington University, 2007
- A.B., Economics, Princeton University, 2003

Professional Experience

- Research Mathematical Statistician, U.S. Census Bureau, 2012-Present
- Adjunct Professor, Department of Statistics, George Washington University, 2013-Present

Selected Publications

- Morris, D.S. and Raim, A.M. 2023. "Comparing Trial and Variable Association in Contingency Table Data Using Multinomial Models for Clustered Data." *In Proceedings of the 37th International Workshop on Statistical Modelling*. Dortmund, Germany: Statistical Modelling Society, 536-542.
- Kang, J., Morris, D.S., Joyce, P., and Dompreh, I. In Press. "On Calibrated Inverse Probability Weighting and Generalized Boosting Propensity Score Models for Mean Estimation with Incomplete Survey Data," *Wiley Interdisciplinary Reviews (WIREs) Computational Statistics*.
- Morris, D.S. and Sellers, K.F. 2022. "A Flexible Mixed Model for Clustered Count Data," *Stats: Special Issue on Statistics, Data Analytics, and Inferences for Discrete Data, 5(1):* 52–69. https://doi.org/10.3390/stats5010004.
- Morris, D. S., Raim, A. M., and Sellers, K. F. 2020. "A Conway–Maxwell-Multinomial Distribution for Flexible Modeling of Clustered Categorical Data," *Journal of Multivariate Analysis*, vol. 179. https://doi.org/10.1016/j.jmva.2020.104651.
- Barseghyan, L., Molinari, F., Morris, D.S., and Teitelbaum, J. 2020. "The Cost of Legal Restrictions on Experience Rating," *Journal of Empirical Legal Studies, 17(2)*, 38-70.
- Dumbacher, B., Morris, D.S., and Hogue, C. 2019. "Using Electronic Transaction Data to Add Geographic Granularity to Official Estimates of Retail Sales." *Journal of Big Data, 6:80*.
- Keller, A, Mule, V.T., Morris, D.S. and Konicki, S. 2018. "A Distance Metric for Modeling the Quality of Administrative Records for Use in the 2020 U.S. Census," *Journal of Official Statistics*, 34(3): 1-27.
- Sellers, Kimberly F. and Darcy Steeg Morris. 2017. "Under-dispersion Models: Models that are 'Under the Radar'." *Communications in Statistics - Theory and Methods*.
- Morris, Darcy Steeg and Kimberly F. Sellers. 2017. "A COM-Poisson Mixed Model with Normal Random Effects for Clustered Count Data." *In Proceedings of the 61st World Statistics Congress of the International Statistical Institute*.

- Morris, Darcy Steeg. 2017. "A Modeling Approach for Administrative Records Enumeration in the Decennial Census." *Public Opinion Quarterly: Special Issue on Survey Research, Today and Tomorrow*, 81(S1): 357-384.
- Morris, Darcy Steeg, Kimberly F. Sellers, and Austin Menger. 2017. "Fitting a Flexible Model for Longitudinal Count Data Using the NLMIXED Procedure." *In SAS Global Forum Proceedings*.
- Abramowitz, Joelle, Brett O'Hara, and Darcy Steeg Morris. 2017. "Risking Life and Limb: Estimating a Measure of Medical Care Economic Risk and Considering its Implications." *Health Economics*, 26(4): 469-485.
- Zhu, L., Kimberly F. Sellers, Darcy Steeg Morris, and G. Shmueli. 2017. "Bridging the Gap: A Generalized Stochastic Process for Count Data." *The American Statistician*, 71(1): 71-80.
- Sellers, Kimberly F., Darcy Steeg Morris, and N. Balakrishnan. 2016. "Bivariate Conway-Maxwell-Poisson Distribution: Formulation, Properties, and Inference." *Journal of Multivariate Analysis*, 150; 152-168.
- Morris, Darcy Steeg. 2016. "An Approach for Using Administrative Records to Reduce Contacts in the 2020 Census." *Statistical Journal of the International Association for Official Statistics*, 32(2); 177-188.
- Morris, Darcy Steeg. 2013. "A Semiparametric Approach for Multivariate Longitudinal Count Data." *Proceedings of the 28th International Workshop on Statistical Modeling*.
- Morris, Darcy Steeg. 2012. "Methods for Multivariate Longitudinal and Duration Models with Applications in Economics." *PhD Dissertation, Cornell University*.

Approved on: January 1, 2024

Mary H. Mulry
Principal Researcher

Contact Information

- 682-305-8809
- mary.h.mulry@census.gov

Fields of Interest

- Applied Statistics
- Survey Research Methods
- Nonsampling Error Modeling and Measurement
- Survey Sampling

Education

- Ph.D., Mathematics, Indiana University, 1978
- M.A., Statistics, Indiana University, 1977
- M.A., Mathematics, Indiana University, 1975
- B.S., Mathematics, Texas Christian University, 1972

Professional Experience

- Principal Researcher, U.S. Census Bureau, 2001-Present
- Vice President, American Statistical Association, 2011-2013
- Indpendent Consultant, Abt Associates, 2000-2001
- Director in Marketing Science, M/A/R/C Research, 1997-2000
- Supervisory Mathematical Statistician, U.S. Census Bureau, 1984-1997
- Research Engineer, Lockheed Austin Division, 1983-1984
- Mathematical Statistician, U.S. Census Bureau, 1980-1983
- Member of the Research Staff, System Planning Corporation, 1978-1980

Professional Associations

- [Fellow, American Statistical Association, 1994](#)
- [American Association of Public Opinion Researchers](#)

Selected Publications

- Mulry, M.H. and Mule, V.T. 2022. "Advances in the Use of Capture-Recapture Methodology in the Estimation of U.S. Census Coverage Error," *In Recent Advances on Sampling Methods and Educational Statistics*. In Honor of S. Lynne Stokes. Editors Hon Keung Tony Ng and Daniel F. Heitjan, 93–116, ISSN 2524-7735, https://doi.org/10.1007/978-3-031-14525-4
- Mulry, M., Bates, N., and Virgile, M. 2021. "Viewing Participation in Censuses and Surveys through the Lens of Lifestyle Segments." *Journal of Survey Statistics and Methodology*. DOI: 10.1093/jssam/smaa006
- Mulry, Mary H., S. Kaputa, and Katherine Jenny Thompson. 2018. ["Setting M-Estimation Parameters for Detection and Treatment of Influential Values."](#) *Journal of Official Statistics*, 34(2), 483-501.
- Mulry, Mary H., Elizabeth M. Nichols, and J. Hunter Childs. 2017. "Using Administrative Records Data at the U.S. Census Bureau: Lessons Learned from Two Research Projects Evaluating Survey Data, Part 2 of Establishing

United States Census Bureau

Infrastructure for the Use of Big Data to Understand Total Survey Error." *Examples from Four Survey Research Organizations In Biemer, P.P, Eckman, S., Edwards, B., Lyberg, L., Tucker, C., de Leeuw, E., Kreuter, F., and West, B.T. (Eds.), Total Survey Error in Practice. Wiley. New York*, 467-473. DOI: 10.1002/9781119041702.ch21.

- Mulry, Mary H. and Andrew Keller. 2017. "Comparison of 2010 Census Nonresponse Followup Proxy Responses with Administrative Records Using Census Coverage Measurement Results." ➡️*Journal of Official Statistics, 33(2)*, 455-475.

- Mulry, Mary H., Broderick E. Oliver, Stephen J. Kaputa, and Katherine Jenny Thompson. 2016. "A Cautionary Note on Clark Winsorization." ➡️📄*Survey Methodology, 42 (2)*, 297-305.

- Mulry, Mary H., Elizabeth M. Nichols, and Jennifer Hunter Childs. 2016. "A Case Study of Error in Survey Reports of Move Month Using the U.S. Postal Service Change of Address Records." ➡️*Survey Methods: Insights from the Field*.

- Mulry, Mary H., B. E. Oliver, and S. J. Kaputa. 2014. "Detecting Treating Verified Influential Values in a Monthly Retail Trade Survey." *Journal of Official Statistics, 30 (4)*, 721-747.

- Mulry, Mary H. 2014. "Measuring Undercounts in Hard-to-Survey Groups." In *Hard-to-Survey Populations*, ed. R. Tourangeau, N. Bates, B. Edwards, T. Johnson, and K. Wolter, Cambridge University Press. Cambridge, England.

- Hogan, H. and Mary H. Mulry. 2014. "Assessing Accuracy of Postcensal Estimates: Statistical Properties of Different Measures." In *Emerging Techniques in Applied Demography*, ed. N. Hogue, Springer. New York: NY.

- Mulry, Mary H. and Nancy Bates. 2011. "Using a Geographic Segmentation to Understand, Predict, and Plan for Census and Survey Mail Nonresponse." *Journal of Official Statistics, 27 (4)*, 601-618.

- Mulry, Mary H. and T.P. Olson. 2011. "Analyses for the U.S. 2010 Census Partnership Program." *Social Marketing Quarterly*, 17 (1).

- Mulry, Mary H. 2007. "Summary of Accuracy and Coverage Evaluation for Census 2000." *Journal of Official Statistics, 23 (3)*.

- Mulry, Mary H., S.L. Bean, D.M. Bauder, D. Wagner, Vincent Thomas Mule, and R.J. Petroni. 2006. "Evaluation of Estimates of Census Duplication Using Administrative Records Information." *Journal of Official Statistics, 22 (4)*, 655-679.

- Mulry, Mary H. and B. Spencer. 1993. "Accuracy of the 1990 Census and Undercount Adjustments." *Journal of the American Statistical Association, 88 (423)*, 1080-1091.

- Alho, J., Mary H. Mulry, K. Wurdeman, and J. Kim. 1993. "Estimating Heteogeneity in the Probabilities of Enumeration for Dual-System Estimation." *Journal of the American Statistical Association, 88 (423)*, 1130-1136.

- Mulry, Mary H. and B.D. Spencer. 1991. "Total Error in PES Estimates of Population." *Journal of the American Statistical Association, 86*, 839-854, with discussion and reply, 855-863.

Tapan Nayak

Principal Researcher

Contact Information

- 301-763-5191
- tapan.nayak@census.gov

Fields of Interest

- Statistical Theory and Methodology in Diversity Analysis
- Inference and Prediction
- Pitman Measures of Closeness
- Reliability, Sampling, and Disclosure Avoidance

Education

- Ph.D., Statistics, Dissertation entitled: "Applications of Entropy Functions in Measurement and Analysis of Diversity", University of Pittsburgh, 1983
- M.STAT, Statistics, Indian Statistical Institute, Calcutta, India , 1979
- B.Sc., Statistics, University of Calcutta, Calcutta, India, 1976

Professional Experience

- Principal Researcher, Research Mathematical Statistician, U.S. Census Bureau, 2008-Present
- Professor and Chairman (2001-2007; 2016-), Department of Statistics, George Washington University, 1983-Present
- ASA/USDA-NASS Senior Research Fellow, National Agricultural Statistics Service, Research Division, 1997-1998
- Visiting Scientist, Division of Theoretical Statistics and Mathematics, Indian Statistical Institute, 1990
- Lecturer, R.K.M.R. College, Narendrapur, India, 1979-1980

Professional Associations

- Fellow, American Statistical Association, 2006
- Elected Member, International Statistical Institute, 1996

Selected Publications

- Nayak, T.K. 2021. "A Review of Rigorous Randomized Response Methods for Protecting Respondent's Privacy and Data Confidentiality," in *Methodology and Applications of Statistics: A Volume in Honor of C.R. Rao on the Occasion of his 100th Birthday*, ed. B.C. Arnold, N. Balakrishnan and C.A. Coelho, New York: Springer, pp. 319-341.
- Chai, J. and Nayak, T.K. 2021. "Minimax Randomized Response Methods for Protecting Respondent's Privacy," *Communications in Statistics - Theory and Methods*, https://doi.org/10.1080/03610926.2021.1973503
- Zhai, X., and Nayak, T.K. 2021. "A Post-randomization Method for Rigorous Identification Risk Control in Releasing Microdata," *Journal of Statistical Theory and Practice*, 15, Article 8, https://doi.org/10.1007/s42519-020-00143-2.
- Zhang, C. and Nayak, T.K. 2020. "Post-Randomization for Controlling Identification Risk in Releasing Microdata from General Surveys," *Journal of Applied Statistics*, DOI: 10.1080/02664763.2020.1732310.

- Chai, J. and Tapan Nayak. 2018. "A Criterion for Privacy Protection in Data Collection and Its Attainment via Randomized Response Procedures." *Electronic Journal of Statistics*, 12, 4264-4287.
- Nayak, Tapan, C. Zhang, and Jiashen You. 2018. "Measuring Identification Risk in Microdata Release and Its Control by Post-randomization." *International Statistical Review*, 86(2), 300-321.
- Nayak, Tapan, S.A. Adeshiyan, and C. Zhang. 2016. "A Concise Theory of Randomized Response Techniques for Privacy and Confidentiality Protection." In *Handbook of Statistics, Vol. 34: Data Gathering, Analysis and Protection of Privacy through Randomized Response Techniques: Qualitative and Quantitative Human Traits*, ed. A. Chaudhuri, T.C. Christofides, and C.R. Rao, New York: Elsevier, 273-286.
- Nayak, Tapan and S.A. Adeshiyan. 2016. "On Invariant Post-randomization for Statistical Disclosure Control." *International Statistical Review, 84*, 26-42.
- Nayak, Tapan, C. Zhang, and S.A. Adeshiyan. 2015. "Emerging Applications of Randomized Response Concepts and Some Related Issues." *Model Assisted Statistics and Applications, 10*, 335-344.
- Zhou, H. and Tapan Nayak. 2015. "On the Equivariance Criterion in Statistical Prediction." *Annals of the Institute of Statistical Mathematics, 67*, 541-555.
- Nayak, Tapan and B. Sinha. 2015. "An Appreciation of Balanced Loss Functions via Regret Loss." *Commun. Statist.-Theory Meth., 44*, 607-616.
- Lai, Y., F. Zhang, Tapan Nayak, R. Modarres, N.H. Lee, and T.A. McCaffrey. 2014. "Condordant Integrative Gene Set Enrichment Analysis of Multiple Large-scale Two-sample Expression Data Sets." *BMC Genomics, 15 (Suppl. 1)*, S6, doi: 10.1186/1471-2164-15-S1-S6.
- Zhou, H. and Tapan Nayak. 2014. "A Note on Existence and Construction of Invariant Loss Functions." *Statistics, 48*, 1335-1343.
- Zhou, H. and Tapan Nayak. 2012. "Pitman Closet Equivariant Estimators and Predictors under Location-Scale Models." *Journal of Statistical Planning and Inference, 142*, 1367-1377.
- Nayak, Tapan and B. Sinha. 2012. "Some Aspects of Minimum Variance Unbiased Estimation in Presence of Ancillary Statistics." *Statistics & Probability Letters, 82*, 1129-1135.
- Dewanji, A., S. Kundu, and Tapan Nayak. 2012. "Nonparametric Estimation of the Number of Components of a Superposition of Renewal Processes." *Journal of Statistical Planning and Inference, 142*, 2710-2718.
- Nayak, Tapan, Bimal Sinha, and Laura Zayatz. 2011. "Statistical Properties of Multiplicative Noise Masking for Confidentiality Protection." *Journal of Official Statistics, 27*, 527-544.
- Sinha, B., Tapan Nayak, and L. Zayatz. 2011. "Privacy Protection and Quantile Estimation from Noise Multiplied Data." *Sankhya, Ser. B, 73*, 297-315.
- Nayak, Tapan and M. Qin. 2010. "The Concept of Risk Unbiasedness in Statistical Prediction." *Journal of Statistical Planning and Inference, 140*, 1923-1938.
- Nayak, Tapan and S.A. Adeshiyan. 2009. "A Unified Framework for Analysis and Comparison of Randomized Response Surveys of Binary Characteristics." *Journal of Statistical Planning and Inference, 139*, 2757-2766.
- Nayak, Tapan. 2009. "Impact of Karl Pearson's Work on Statistical Developments in India." *International Statistical Review, 77*, 72-80.
- Nayak, Tapan. 2008. "Reflections on Data Perturbation and Post-randomization for Statistical Disclosure Control." *Journal of Statistics and Applications, 3*, 303-313.
- Kundu, S., Tapan Nayak, and S. Bose. 2008. "Are Nonhomogeneous Poisson Process Models Preferable to General-Order Statistics Models for Software Reliability Estimation?" In *Statistical Models and Methods for Biomedical and Technical Systems*, ed. F. Vonta, M.S. Nikulin, N. Limnios and C. Huber-Carol. Boston: Birkhauser, 137-152.
- Nayak, Tapan, S. Bose, and S. Kundu. 2008. "On Inconsistency of Estimators of Parameters of Nonhomogeneous Poisson Process Models for Software Reliability." *Statistics & Probability Letters, 78*, 2217-2221.
- Qin, M. and Tapan Nayak. 2008. "Kshirsagar-Type Lower Bounds for Mean Squared Error of Prediction." *Commun. Statist.-Theory Meth., 37*, 861-872.
- Nayak, Tapan and S. Kundu. 2007. "Comparison of Stopping Rules in Sequential Estimation of the Number of Classes in a Population." *Sequential Anlaysis, 26*, 367-381.

Osbert Pang

Research Mathematical Statistician

Contact Information

- 301-763-0252
- osbert.c.pang@census.gov

Fields of Interest

- Time Series and Seasonal Adjustment
- Bayesian Analysis
- Classification and Regression Tree
- Data Mining

Education

- Ph.D., Statistics, University of Pennsylvania, 2009
- M.S., Statistics, University of Pennsylvania, 2007
- B.A., Mathematics, University of Pennsylvania, 2002
- B.A., Economics, University of Pennsylvania, 2002

Professional Experience

- Research Mathematical Statistician, U.S. Census Bureau, 2011-Present

Selected Publications

- Chen, B., McElroy, T., and Pang, O. 2022. "Assessing Residual Seasonality in the U.S. National Income and Product Accounts Aggregates," *Journal of Official Statistics, Volume 38, Issue 2, 399-428.*.
- McElroy, T., Pang, O., and Sheldon, G. 2019. "Custom Epoch Estimation for Surveys," *Journal of Applied Statistics,* 46, 638-663.
- McElroy, Tucker and Osbert Pang. 2015. "The Algebraic Structure of Transformed Time Series." In *Empirical Economic and Financial Research: Theory, Methods, and Practice*, ed. Beran, J., Feng, Y., and Hebbel, H., 89-104. New York, Springer.
- Livsey, James, Osbert Pang, and Tucker McElroy. 2014. "Effect of Trading Day Regressors on Seasonal Adjustment of Growth Rates." Research Report Series, Statistics #2014-09.
- Pang, Osbert and Tucker McElroy. 2014. "Forecasting Fertility and Mortality by Race/Ethnicity and Gender." Research Report Series, Statistics #2014-03.

United States Census Bureau

Paul Parker
Research Mathematical Statistician

Contact Information

- 301-763-2613
- paul.parker@census.gov

Fields of Interest

- Small Area Estimation
- Dependent Data
- Bayesian Methodology
- Data Science and Machine Learning Methods

Education

- Ph.D., Statistics, University of Missouri, 2021
- M.A., Statistics, University of Missouri, 2018
- B.S., Applied Mathematics, University of Idaho, 2014

Professional Experience

- Research Mathematical Statistician, U.S. Census Bureau, 2022-Present
- Assistant Professor, Statistics, University of California Santa Cruz, 2021-Present
- Dissertation Fellow, U.S. Census Bureau, 2019-2021

Selected Publications

- Parker, P., Holan, S.H., and Janicki, R. 2023. "Comparison of Unit Level Small Area Estimation Modeling Approaches for Survey Data Under Informative Sampling," *Journal of Survey Statistics and Methodology*, Vol 11, No. 4, 858-872.
- Parker, P., Holan, S.H., and Janicki, R. 2023. "A Comprehensive Overview of Unit Level Modeling of Survey Data for Small Area Estimation Under Informative Sampling," *Journal of Survey Statistics and Methodology*, Vol 11, No. 4, 829-857.
- Parker, P., Holan, S.H., and Janicki, R. In Press. "Conjugate Modeling Approaches for Small Area Estimation with Heteroscedastic Structure," *Journal of Survey Statistics and Methodology*.
- Sun, A., Parker, P.A., and Holan, S.H. In Press. "Analysis of Household Pulse Survey Public-Use Microdata via Unit-Level Models for Informative Sampling." *Stats (Special Issue on Small Area Estimation: Theories, Methods and Applications)*.
- Parker, P.A., Janicki, R., and Holan, S.H. In Press. "Bayesian Methods Applied to Small Area Estimation for Establishment Statistics." *Advances in Business Statistics, Methods and Data Collection.*
- Parker, P.A., Holan, S.H., and Janicki, R. 2022. "Computationally Efficient Bayesian Unit-Level Models for Non-Gaussian Data Under Informative Sampling with Application to Estimation of Health Insurance Coverage." *The Annals of Applied Statistics, Vol 16, No. 2,* 887-904.
- Parker, P.A., Holan, S.H., and Wills, S.A. 2021. "A General Bayesian Model for Heteroskedastic Data with Fully Conjugate Full-Conditional Distributions." *Journal of Statistical Computation and Simulation*, 91(15), 3207-3227.
- Nunes, M.R., Veum, K.S., Parker, P.A., Holan, S.H., Karlen, D.L., Amsili, J.P., van Es, H.M., Wills, S.A, Seybold, C.A., and Moorman, T.B. 2021. "The Soil Health Assessment Protocol and Evaluation Applied to Soil Organic C." *Soil Science Society of America Journal*, 85, 1196– 1213.

- Parker, P.A., Holan, S.H., and Ravishanker, N. 2020. "Nonlinear Time Series Classification Using Bispectrum-based Deep Convolutional Neural Networks." *Applied Stochastic Models in Business and Industry*, 36, 877– 890.
- Parker, P.A., Holan, S.H., Janicki, R. 2020. "Conjugate Bayesian Unit-level Modelling of Count Data Under Informative Sampling Designs." *Stat*, 9(1): e267.
- Veum, K.S., Parker, P.A., Sudduth, K.A., and Holan, S.H., 2018. "Predicting Profile Soil Properties with Reflectance Spectra via Bayesian Covariate Assisted External Parameter Orthogonalization." *Sensors*, 18, 3869, doi:10.3390/s18113869.

Approved on: January 1, 2024

Thomas Petkunas

Information Technology Specialist

Contact Information

- 301-763-3216
- thomas.f.petkunas@census.gov

Education

- B.S., Applied Mathematics, Computer Science, University of Pittsburgh, 1983

Professional Experience

- Information Technology Specialist, U.S. Census Bureau, 1989-Present
- Mathematical Statistician (P), U.S. Census Bureau, 1984-1989

Selected Publications

- Russell, Chad Eric, Thomas Petkunas, and M. Appel. 1995. "Experiences with Fax Data Reporting and Questionnaire Distribution." *Proceedings of the Section of Survey Research Methods, Vol 1, American Statistical Methods*.
- Greenberg, Brian, Lisa Draper, and Thomas Petkunas. 1990. "On-line Capabilities in SPEER (Structured Programs for Economic Editing and Referrals)." *Statistics Canada Symposium 90*.
- Greenberg, Brian and Thomas Petkunas. 1990. "SPEER (Structured Programs for Economic Editing and Referrals)." *1990 Annual Meetings of the American Statistical Association*.

Approved on: March 12, 2020

Edward H. "Ned" Porter

Information Technology Specialist

Contact Information

- 301-763-1798
- edward.h.porter@census.gov

Fields of Interest

- Data Science
- Record Linkage
- Data Cleaning

Education

- B.S., Computer Science, Northeastern University, 1988
- B.S., Mathematics, Northeastern University, 1988

Professional Experience

- Information Technology Specialist, U.S. Census Bureau, 1988-Present

Selected Publications

- Porter, E. H. and Winkler, W. E. 1997. "Approximate string comparison and its effect on an advanced record linkage system" . U.S. Bureau of the Census, Research Report.
- Winkler, W. E., Yancey, W., Porter, E. H. . "Fast record linkage of very large files in support of decennial and administrative records projects". Proceedings of the Section on Survey Research Methods, American Statistical Association.
- Ramachandran, A., Singh, L., Porter, E. H., Nagle, F. 2012. "Exploring re-identification risks in public domains" Tenth Annual International Conference on Privacy, Security, and Trust, 35-42.

Approved on: August 12, 2021

United States
Census
Bureau

Andrew M. Raim
Research Mathematical Statistician

Contact Information

- 301-763-7894
- andrew.raim@census.gov

Fields of Interest

- Finite Mixture Models
- Overdispersion Models for Categorical Data
- Statistical Computing
- High Performance Computing

Education

- Ph.D., Statistics, University of Maryland, Baltimore County, 2014
- M.S., Statistics, University of Maryland, Baltimore County, 2011
- M.S., Computer Science, University of Maryland, Baltimore County, 2007
- B.S., Computer Science, University of Maryland, Baltimore County, 2002

Professional Experience

- Research Mathematical Statistician, U.S. Census Bureau, 2014-Present
- Software Engineer, Advertising.com / AOL, 2002-2008

Professional Associations

- [American Statistical Association](#) ➡

Selected Publications

- Raim, A.M., Nichols, E., and Mathew, T. 2023. "A Statistical Comparison of Call Volume Uniformity Due to Mailing Strategy," *Journal of Official Statistics*, 39, 103-121.
- Raim, A.M., Mathew, T., Sellers, K. F., Ellis, R., and Meyers, M. 2023. "Design and Sample Size Determination for Experiments on Nonresponse Follow-up using a Sequential Regression Model," *Journal of Official Statistics*, 39(2), 173-202.
- Raim, A.M. 2023. "Direct Sampling with a Step Function," *Statistics and Computing*, 33(22). https://doi.org/10.1007/s11222-022-10188.
- Morris, D.S. and Raim, A.M. 2023. "Comparing Trial and Variable Association in Contingency Table Data Using Multinomial Models for Clustered Data." *In Proceedings of the 37th International Workshop on Statistical Modelling*. Dortmund, Germany: Statistical Modelling Society, 536-542.
- Janicki, R., Holan, S. H., Irimata, K. M., Livsey, J., and Raim, A. In Press. "Spatial Change of Support Models for Differentially Private Decennial Census Counts of Persons by Detailed Race and Ethnicity," *Journal of Statistical Theory and Practice*.
- Raim, A.M., Holan, S.H., Bradley, J.R., and Wikle, C.K. In Press. "Spatio-temporal Change of Support Modeling with R," *Computational Statistics*. https://doi.org/10.1007/s00180-020-01029-4
- Janicki, R., Raim, A.M., Holan, S.H., and Maples, J. 2022. "Bayesian Nonparametric Multivariate Spatial Mixture Mixed Effects Models with Application to American Community Survey Special Tabulations," *The Annals of*

United States **Census** Bureau

Applied Statistics, Volume 16, Issue 1, 144 - 168.

- Morris, D. S., Raim, A. M., and Sellers, K. F. 2020. "A Conway–Maxwell-Multinomial Distribution for Flexible Modeling of Clustered Categorical Data," *Journal of Multivariate Analysis*, vol. 179. https://doi.org/10.1016/j.jmva.2020.104651.
- Martin, S., Andrew M. Raim, W. Huang, and K.P. Adragni. In Press. "ManifoldOptim: An R Interface to the ROPTLIB Library for Riemannian Manifold Optimization." *Journal of Statistical Software*.
- Raim, Andrew M., Nagaraj K. Neerchal, and Jorge G. Morel. 2018. "An Extension of Generalized Linear Models to Finite Mixture Outcome Distributions." ▣▶*Journal of Computational and Graphical Statistics*, 27:3, 587-601.
- Heim, Krista and Andrew M. Raim. 2016. "Predicting coverage error on the master address file using spatial modeling methods at the block level." *JSM Proceedings, Survey Research Methods Section*.
- Raim, Andrew M. 2016. " Informing maintenance to the U.S. Census Bureau's Master Address File with statistical decision theory." *JSM Proceedings, Government Statistics Section*.
- Young, D.S., Andrew M. Raim, and N. R. Johnson. 2016. "Zero-inflated Modelling for Characterizing Coverage Errors of Extracts from the U.S. Census Bureau's Master Address File." *Journal of the Royal Statistical Society: Series A*.
- Adragni, K.P., E. Al-Najjar, S. Martin, S.K. Popuri, and Andrew M. Raim. 2016. "Groupwise Sufficient DimensionReduction with Principal Fitted Components." *Computational Statistics*.
- Sellers, Kimberly F., and Andrew M. Raim. 2016. "A Flexible Zero-Inflated Model to Address Data Dispersion." ▣▶ *Computational Statistics and Data Analysis*, (99) 68-80.
- Raim, Andrew M., N. Neerchal, and J. Morel. 2015. "An Approximation to the Information Matrix of Exponential Family Finite Mixtures." ▣▶*Annals of the Institute of Statistical Mathematics*, 69(2):333-364.
- Raim, Andrew M. and M.N. Gargano. 2015. "Selection of Predictors to Model Coverage Errors in the Master Address File." ▣*Research Report Series (RRS #2015-04)*, Center for Statistical Research and Methodology, U.S. Census Bureau.
- Adragni, K.P. and Andrew M. Raim. 2014. "Idr: An R Software Package for Liklihood-Based Sufficient Dimension Reduction." *Journal of Statistical Software, 61(3)*.
- Raim, Andrew M., M. Liu, N.K. Neerchal, and J.G. Morel. 2014. "On the Method of Approximate Fisher Scoring for Finite Mixtures of Multinomials." *Statistical Methodology, 18*, 115-130.
- Raim, Andrew M., M.K. Gobbert, N.K. Neerchal, and J.G. Morel. 2013. "Maximum-Likelihood Estimation of the Random-Clumped Multinomial Model as a Prototype Problem for Large-Scale Statistical Computing ." *Journal of Statistical Computation and Simulation, 83 (12)*, 2178-2194.
- Raim, Andrew M. and N.K. Neerchal. 2013. "Modeling Overdispersion in Binomial Data with Regression Linked to a Finite Mixture Probability of Success." *Proceedings of the Joint Statistical Meetings (ASA Section on Survey Research Methods)*, American Statistical Association, Alexandria, VA, 2760-2774.
- Raim, Andrew M. 2013. "Introduction to Distributed Computing with pbdR at the University of Maryland, Baltimore County (UMBC) High Performance Computing Facility." *Technical Report HPCF-2013-2*, UMBC High Performance Computing Facility, University of Maryland, Baltimore County.

Anindya Roy

Principal Researcher

Contact Information

- 301-763-3591
- anindya.roy@census.gov

Fields of Interest

- Time Series
- Nonparametric Bayesian Methods
- Biomedical Applications

Education

- Ph.D., Statistics, Iowa State University, 1999
- M.S., Statistics, Indian Statistical Institute, 1993
- B.S., Statistics, Indian Statistical Institute, 1991

Professional Experience

- Principal Researcher, Research Mathematical Statistician, U.S. Census Bureau, 2013-Present
- Professor, Statistics, University of Maryland Baltimore County, 2009-Present

Professional Associations

- [Fellow, American Statistical Association, 2017](#) ⏏

Selected Publications

- McElroy, T., Roy, A., and Hore, G. 2023. "FLIP: a Utility Preserving Privacy Mechanism for Time Series," *Journal of Machine Learning Research*, 24, 1-29.
- Guin, A., Roy, A., and Sinha, B. 2022. "Bayesian Analysis of Multiply Imputed Synthetic Data under the Multiple Linear Regression Model," *International Journal of Statistical Sciences*, Volume 22(2), 25-38.
- Guin, A., Roy, A., and Sinha, B. 2023. "Bayesian Analysis of Singly Imputed Synthetic Data under the Multivariate Normal Model," *International Journal of Statistical Sciences*, Volume 23(2), November 2023.
- Guin, A., Roy, A., and Sinha, B. In Press. "Bayesian Analysis of Singly Imputed Partially Synthetic Data Generated by Plug-In Sampling and Posterior Predictive Sampling under the Multiple Linear Regression Model," *International Journal of Statistical Applications.*
- McElroy, T. and Roy, A. 2022. "A Review of Seasonal Adjustment Diagnostics," *International Statistical Review, 90(2),* 259-284.
- McElroy, T. and Roy, A. 2022. "Model Identification via Total Frobenius Norm of Multivariate Spectra," *Journal of the Royal Statistical Society, Series B, Volume 84,* 473-495.
- McElroy, T., Roy, A., Livsey, J., Firestine, T., and Notis, K. 2021. "Anticipating Revisions in the Transportation Services Index," *Journal of the International Association of Official Statistics*, 37, 641-653.
- McElroy, T. and Roy, A. 2021. "Testing for Adequacy of Seasonal Adjustment in the Frequency Domain," *Journal of Statistical Planning and Inference, 221*, 241-255.
- Roy, A., McElroy, T., and Linton, P. 2019. "Estimation of Causal Invertible VARMA Models." *Statistica Sinica, 29, 455-478.*

- McElroy, Tucker and Anindya Roy. 2018. "The Inverse Kullback Leibler Method for Fitting Vector Moving Averages." *Journal of Time Series Analysis*, 39: 172-191.
- Ghosal, S. and Anindya Roy. 2017. "Discussion of 'Should We Sample A Time Series More Frequently? Decision Support via Multirate Spectrum Estimation by Nason, G., Powell, B., Elliott, D., and Smith P.A." *Journal of the Royal Statistical Society--Series A, 180*, 393-394.
- Malinovsky, Y., P. Albert, and Anindya Roy. 2015. "A Note on the Evaluation of Group Testing Algorithms in the Presence of Misclassification." *Biometrics*.
- Gao, Z., Anindya Roy, and M. Tan. 2015. "Multistage Adaptive Biomarker-directed Targeted Design for Randomized Clinical Trials." *Contemporary Clinical Trials, 42*, 119-131.
- Banerjee, S. and Anindya Roy. 2014. *Linear Algebra and Matrix Analysis for Statistics.* Chapman & Hall.
- Guha, N., I. Roy, and Anindya Roy. 2013. "Bayesian Estimation of Huff Curves." *Electronic Journal of Statistics, 7*, 2794-2821.
- Warfeild, J.D. and Anindya Roy. 2013. "A Semiparametric Sequential Algorithm for Estimation of Dose-Response Curve." *Sequential Analysis, 32*, 196-213.
- Guha, N., Anindya Roy, L. Kopylev, J. Fox, M. Spassova, and P. White. 2013. "Nonparametric Bayesian Method for Benchmark Dose Estimation." *Risk Analysis, 33*, 1608-1619.
- Danaher, M.R., Anindya Roy, Z. Chen, S.L. Mumford, and E.F. Scheisterman. 2012. "Minkowski-Weyl Priors for Models with Parameter Constraints: An Analysis of the Biocycle Study." *Journal of the American Statistical Association*.
- Roy, Anindya, N.J. Perkins, and G.M. Buck Louis. 2012. "Assessing Chemical Mixtures and Human Health: Use of Bayesian Belief Net Analysis." *Journal of Environmental Protection, 3*, 462-468.
- Ghosal, S. and Anindya Roy. 2011. "Identifiability of the Proportion of Null Hypothesis in Mixture Models for P-Value Distribution." *Electronic Journal of Statistics, 5*, 329-341.
- Ghosal, S. and Anindya Roy. 2011. "Predicting False Discovery Proportion Under Dependence." *Journal of the American Statistical Association, 106*, 1208-1218.
- Novey, M., T. Adali, and Anindya Roy. 2010. "The Complex Generalized Gaussian Distribution-Characterization, Generation, and Estimation." *IEEE Transactions on Signal Processing, 58*, 1427-1433.
- Roy, Anindya and A. Bose. 2009. "Large Sample Modification for Generalized Confidence Intervals." *Journal of the Multivariate Analysis, 100*, 1384-1397.
- Roy, Anindya, S. Ghosal, and W.F. Rosenberger. 2009. "Convergence Properties of Sequential Bayesian D-Optimal Designs with Application to Phase I Clinical Trials." *Journal of Statistical Planning and Inference, 139*, 425-440.
- Roy, Anindya, D. Bhaumick, R. Gibbons, and J. Aryal. 2007. "Sample Size Determination for Three-Level Longitudinal Designs with Differential Attrition Rates." *Biometrics, 63*, 699-707.
- Ghosal, S. and Anindya Roy. 2006. "Posterior Consistency of Gaussian Process Prior for Nonparametric Binary Regression." *Annals of Statistics, 34*, 2413-2429.
- Choudhuri, N., S. Ghosal, and Anindya Roy. 2004. "Bayesian Estimation of the Special Density of a Time Series." *Journal of the American Statistical Association, 99*, 1050-1059.
- Choudhuri, N., S. Ghosal, and Anindya Roy. 2004. "Contiguity of the Whittle Measure for a Gaussian Time Series." *Biometrika, 91*, 211-218.

Approved on: January 1, 2024

United States Census Bureau

Chad Eric Russell

Principal Researcher

Contact Information

- 301-763-3215
- chad.eric.russell@census.gov

Fields of Interest

- Computer Networks and Systems
- Computer Security
- IT Business Planning

Education

- M.S., Applied Statistics, Florida State University, 1990
- B.S., Mathematics (cum laude), Florida State University, 1988

Professional Experience

- Principal Researcher, Mathematical Statistician, Information Technology Specialist, U.S. Census Bureau, 1990-Present

Selected Publications

- Russell, Chad Eric and E. Sweet. 1996. "A Discussion of Data Collection via the Internet." *Proceedings of the Section of Survey Research Methods, American Statistical Methods*.
- Russell, Chad Eric, Thomas Petkunas, and M. Appel. 1995. "Experiences with Fax Data Reporting and Questionnaire Distribution." *Proceedings of the Section of Survey Research Methods, Vol 1, American Statistical Methods*.
- Russell, Chad Eric and South Tucson Administrative Records Research Working Group. 1994. "Special Census/Administrative Records Research Results for South Tucson, AZ." *2KS Memorandum Series, Design 2000*, Book 1, Chapter 10F, #4.
- Russell, Chad Eric. 1990. "Coder Variation in the Industry and Occupation Coding Operation: Tables PB 61 and PB 63." *DSSD 1990 Quality Assurance REX Memorandum Series #Y-4*.

Approved on: July 11, 2016

Kimberly F. Sellers

Principal Researcher

Contact Information

- 301-763-9808
- kimberly_sellers@ncsu.edu

Fields of Interest

- General Statistical Methods
- Count Data that Contain Data Dispersion

Education

- Ph.D., Statistics, The George Washington University, 2001
- M.A., Mathematics, University of Maryland, College Park, 1998
- B.S., Mathematics, University of Maryland, College Park, 1994

Professional Experience

- Professor and Chair, Department of Statistics, NC State University, 2023-Present
- Principal Researcher, U.S. Census Bureau, 2015-Present
- Visiting Academic, University of Oxford, 2015
- ASA/NSF/Census Research Fellow, U.S. Census Bureau, 2014-2015
- Research Fellow, Office of Survey Methods Research, Bureau of Labor Statistics, 2010-2011
- Associate Professor, Department of Mathematics and Statistics, Georgetown University, 2012-Present
- Assistant Professor, Department of Mathematics and Statistics, Georgetown University, 2006-2012
- Assistant Professor, Department of Biostatistics and Epidemiology, University of Pennsylvania, 2004-2006
- Visiting Assistant Professor, Statistics Department, Carnegie Mellon University, 2001-2004

Professional Associations

- Fellow, American Statistical Association
- Fellow, Association for Women in Mathematics
- Caucus for Women in Statistics

Selected Publications

- Raim, A.M., Mathew, T., Sellers, K. F., Ellis, R., and Meyers, M. 2023. "Design and Sample Size Determination for Experiments on Nonresponse Follow-up using a Sequential Regression Model," *Journal of Official Statistics*, 39(2), 173-202.
- Morris, D.S. and Sellers, K.F. 2022. "A Flexible Mixed Model for Clustered Count Data," *Stats: Special Issue on Statistics, Data Analytics, and Inferences for Discrete Data, 5(1): 52–69*. https://doi.org/10.3390/stats5010004.
- Weems, K.S., Sellers, K.F., and Li, T. 2021. "A Flexible Bivariate Distribution for Count Data Expressing Data Dispersion," *Communications in Statistics - Theory and Methods*, https://doi.org/10.1080/03610926.2021.1999474.
- Sellers, K.F., Li, T., Wu, Y., and Balakrishnan, N. 2021. "A Flexible Multivariate Distribution for Correlated Count Data," *Stats*, *4*(2), 308-326, https://doi.org/10.3390/stats4020021.
- Sellers, K.F., Arab, A., Melville, S, and Cui, F. 2021. "A Flexible Univariate Moving Average Time-Series Model for Dispersed Count Data," *Journal of Statistical Distributions and Applications* 8 (1).

https://doi.org/10.1186/s40488-021-00115-2

- Sellers, K.F., Peng, S.J., and Arab, A. 2020. "A Flexible Univariate Autoregressive Time-Series Model for Dispersed Count Data," *Journal of Time Series Analysis*, 41 (3): 436-453.
- Morris, D. S., Raim, A. M., and Sellers, K. F. 2020. "A Conway–Maxwell-Multinomial Distribution for Flexible Modeling of Clustered Categorical Data," *Journal of Multivariate Analysis*, vol. 179. https://doi.org/10.1016/j.jmva.2020.104651.
- Sellers, Kimberly F. and Derek Young. 2019. "Zero-inflated Sum of Conway-Maxwell-Poissons (ZISCMP) Regression." *Journal of Statistical Computation and Simulation*, 89 (9): 1649-1673.
- Zhu, L., Kimberly F. Sellers, Darcy Steeg Morris, and G. Shmueli. 2017. "Bridging the Gap: A Generalized Stochastic Process for Count Data." *The American Statistician*, 71(1): 71-80.
- Sellers, Kimberly F. and Darcy Steeg Morris. 2017. "Under-dispersion Models: Models that are 'Under the Radar'." ⬗▸*Communications in Statistics - Theory and Methods*.
- Sellers, Kimberly F., E.K.T Benn, Maria M. Garcia, and M. Kellam. 2017. "Addressing Implicit Bias among Women Statisticians and Data Scientists." *Chance, Vol. 30, No. 2*.
- Sellers, Kimberly F., Darcy Steeg Morris, G. Shmueli, and L. Zhu. 2017. "Reply: Models for Count Data (A Response to A Letter to The Editor)." *The American Statistician, 71 (2)*, 190.
- Sellers, Kimberly F. and Andrew M. Raim. 2016. "A Flexible Zero-Inflated Model to Address Data Dispersion." ▸ *Computational Statistics and Data Analysis*, (99) 68-80.
- Sellers, Kimberly F., Darcy Steeg Morris, and N. Balakrishnan. 2016. "Bivariate Conway-Maxwell-Poisson Distribution: Formulation, Properties, and Inference." *Journal of Multivariate Analysis*, 150; 152-168.
- Perrin, E., T. Sellers, LH Maxwell, M. Morgan, S-M Davis, C. Cook, MC Jackson, and Kimberly F. Sellers. 2015. "A Statistical Analysis of Weight Gain During the Freshman Year of College." ⬗▸*Journal of Student Research, 4(1)*, 144-151.
- Veach, E., I. Xique, J. Johnson, J. Lyle, I. Almodovar, Kimberly F. Sellers, CT Moore, and MC Jackson. 2014. "Race Matters: Analyzing the Relationship between Colorectal Cancer Mortality Rates and Various Factos within Respective Racial Groups." *Frontiers in Public Health, 2*, 239. doi: 10.3389/fpubh.2014.00239.
- Jackson, M.C., A Trotman, M. Stephens, and Kimberly F. Sellers. 2013. "The Effect of Latency Variables on Repeated Measures Inference Applied to the Measurement of Risk-taking as a Function of Psychopathy." *Quality and Quantity, 47 (7)*, 15-26. DOI: 10.1007/s11135-011-9475-4.
- Sellers, Kimberly F. and G. Shmueli. 2013. "Data Dispersion: Now You See It, Now You Don't." *Communications in Statistics--Theory and Methods, 42 (17)*, 3134-3147.
- Sellers, Kimberly F. and J.C. Miecsznikowski. 2012. "Statistical Analysis for Gel Electrophoresis Data." *Gel Electrophoresis-Principles and Basics*, Ed. Dr. Samen Magdeldin, ISBN 978-953-51-0458-2, InTech.
- Miecsznikowski, J.C. and Kimberly F. Sellers. 2012. "Statistical Analysis of Chemical Sensor Data." *Advances in Chemical Sensors*, Ed. Wen Wang, ISBN: 978-953-307-792-5, InTech.
- Sellers, Kimberly F. 2012. "A Distribution Describing Differences in Count Data Containing Common Dispersion Levels." *Advances and Applications in Statistical Sciences, 7 (3)*, 35-46.
- Sellers, Kimberly F., S. Borle, and G. Shmueli. 2012. "The COM-Poisson Model for Count Data: A Survey of Methods and Applications." *Applied Stochastic Models in Business and Industry, 28*, 104-116. DOI: 10.1002/asmb.918.
- Sellers, Kimberly F., S. Borle, and G. Shmueli. 2012. "Rejoinder: The COM-Poisson Model for Count Data: A Survey of Methods and Applications." ▸*Applied Stochastic Models in Business and Industry, 28*, 128-129.
- Sellers, Kimberly F. 2012. "A Generalized Statistical Control Chart for Over- or Under-dispersed Data." *Quality Reliability Engineering International, 28 (1)*, 59-65.
- Miecsznikowski, J.C. and Kimberly F. Sellers. 2011. "Statistical Analysis of Chemical Sensor Data." *Chemical Sensors*, ISBN: 978-953-307-640-9.
- Thompson, W., S. McGinnis, D. McDaniel, J. Sexton, R. Pettit, S. Anderson, Kimberly F. Sellers, and M. Jackson. 2011. "A Geographical and Statistical Analysis of Childhood Leukemia Deaths Relating to the Locations of Nuclear Power Plants." *Advances and Applications in Statistical Science, 6 (5)*, 313-327.
- Miecsznikowski, J.C., Kimberly F. Sellers, and W.F. Eddy. 2011. "Multidimensional Median Filters for Finding Bumps in Chemical Sensor Datasets." *Journal of Sensor Technology, 2 (1)*, 23-37. DOI: 10.4236/jst.2012.21005.
- Miecsznikowski, J.C., S. Damodaran, Kimberly F. Sellers, D.E. Coling, R. Salvi, and R.A. Rabin. 2010. "A Practical Approach to the Analysis of Two-Dimensional Electrophoresis Data: Imputation and Univariate Statistical Analysis." *Proteome Science, 8 (66)*, DOI: 10.1186/1477-5956-9-14.

- Sellers, Kimberly F. and G. Shmueli. 2010. "A Flexible Regression Model for Count Data." *The Annals of Applied Statistics, 4 (2)*, 943-961.
- Sellers, Kimberly F. and J.C. Miecsznikowski. 2010. "Feature Detection Techniques for Preprocessing Preteomic Data." *International Journal of Biomedical Imaging*, Vol. 2010, Article ID 896718. DOI: 10.1155/2010/896718.
- Jackson, MC, L. Johansen, A. Colson, C. Furlong, and Kimberly F. Sellers. 2010. "Modelling the Effect of Climate Change on Prevalence of Malaria in Western Africa." *Statistica Neerlandica, 64 (4)*, 388-400. DOI: 10.111/j.1467-9574.2010.00453.x.
- Sellers, Kimberly F. and N.D. Singpurwalla. 2008. "Many-valued Logic in Vague and Multi-state Stochastic Systems." *International Statistical Review, 76 (2)*, 247-267.
- Jackson, M.C. and Kimberly F. Sellers. 2008. "Simulating Discrete Spatially Correlated Poisson Data on a Lattice." *International Journal of Pure and Applied Mathematics, 46 (1)*, 137-154.
- Giomotty, P.A., D.E. Elder, D.L. Fraker, J.D. Botbyl, Kimberly F. Sellers, and R. Elenitsas et. al. 2007. "Identification of High Risk Patients Among Those Diagnosed with Thin Cutaneous Melanomas." *Journal of Clinical Oncology, 25 (9)*, 1129-1134.
- Makar, G., M. Weiner, S. Kimmel, D. Bennett, A. Burke, Y. Yang, X. Han, Kimberly F. Sellers, L. Nessel, and J. Lewis. 2007. "Incidence and Prevalence of Abnormal Liver Associated Enzymes in Patients with Atrial Fibrillation in a Routine Clinical Care Population." *Pharmacoepidemiology and Druge Safety, 17 (1)*, 43-51.
- Anderson, P.D., N. Mehta, M.L. Wolfe, C.C. Hinkle, L. Pruscino, L.L. Comiskey, J. Tabita-Martinez, Kimberly F. Sellers, and M.R. Rickels et. al. 2007. "Innate Immunity Modeulates Adipokines in Humans." *The Journal of Clinical Endocrinology and Metabolism, 92 (6)*, 2272-2279.
- Sellers, Kimberly F., J.C. Miecsznikowski, S. Viswanathan, W.F. Eddy, and J. Minden. 2007. "Lights, Camera, Action: Quantitative Analysis of Systematic Variation in Two-dimensional Difference Gel Electrophoresis." *Electrophoresis, 28 (18)*, 3324-3332.
- Paez, GL, Kimberly F. Sellers, and M. Band et. al. 2006. "Analysis of Gene Expression Profile on Normal Retina and Brain Using a Retinal cDNA Microarrays." *Molecular Vision, 12*, 1048-1056.
- Ross, T.J., Kimberly F. Sellers, J.M. Booker, and W.J. Parkinson. 2002. "Chapter 5: Considerations for Using Fuzzy Set Theory and Probability Models." *Fuzzy Logic and Probability Applications*, Eds. Ross, T.J., Booker, J.M., and Parkinson, W.J., ASA-SIAM Publications; Philadelphia, PA., 87-103.
- Sellers, Kimberly F. and J.M. Booker. 2002. "Chapter 4: Bayesian Methods." *Fuzzy Logic and Probability Applications*, Eds. Ross, T.J., Booker, J.M., and Parkinson, W.J., ASA-SIAM Publications; Philadelphia, PA., 73-86.

Bimal Sinha
Principal Researcher

Contact Information

- 301-763-4890
- bimal.sinha@census.gov

Fields of Interest

- Multivariate Analysis, Mixed Linear Models
- Decision Theory, Robustness
- Statistical Inference (Frequentist and Bayesian)
- Environmental Statistics, Meta-Analysis, Disclosure Avoidance Methods

Education

- Ph.D., Statistics, Calcutta University, 1973
- M.S., Statistics, Calcutta University, 1967
- B.Sc., Statistics, Calcutta University, 1965

Professional Experience

- Principal Researcher, Research Mathematical Statistician, U.S. Census Bureau, 2008-Present
- Professor of Statistics, Department of Mathematics and Statistics, UMBC, 1985-Present
- Associate Professor, University of Pittsburgh, 1981-1985
- Senior Lecturer, Indian Statistical Institute, 1971-1978
- Visiting Scientist, University of Montreal, 1979-1980

Professional Associations

- [Fellow, Institute of Mathematical Statistics](#) ↪
- [Fellow, American Statistical Association](#) ↪
- [Elected Member, International Statistical Institute](#) ↪
- Presidential Research Professor, UMBC, 2000-2003

Selected Publications

- Guin, A., Roy, A., and Sinha, B. 2022. "Bayesian Analysis of Multiply Imputed Synthetic Data under the Multiple Linear Regression Model," International Journal of Statistical Sciences, Volume 22(2), 25-38.
- Guin, A., Roy, A., and Sinha, B. 2023. "Bayesian Analysis of Singly Imputed Synthetic Data under the Multivariate Normal Model," *International Journal of Statistical Sciences*, Volume 23(2), November 2023.
- Guin, A., Roy, A., and Sinha, B. In Press. "Bayesian Analysis of Singly Imputed Partially Synthetic Data Generated by Plug-In Sampling and Posterior Predictive Sampling under the Multiple Linear Regression Model," *International Journal of Statistical Applications.*
- Moura, R., Klein, M., Zylstra, J., Coelho, C., and Sinha, B. In Press. "Inference for Multivariate Regression Model Based on Synthetic Data Generated Under Plug-In Sampling," *Journal of the American Statistical Association (Theory & Methods)*.
- Klein, M., J. Zylstra, and Bimal Sinha. In Press. "Finite Sample Inference for Multiply Imputed Synthetic Data under a Multiple Linear Regression Model." *Calcutta Statistical Association Bulletin*.

- Klein, M., R. Moura, and Bimal Sinha. In Press. "Multivariate Normal Inference Based on Singly Imputed Synthetic Data under Plug-In Sampling." *Sankhya*.
- Moura, R., M. Klein, C.A. Coelho, and Bimal Sinha. 2017. "Inference for Multivariate Regression Model Based On Synthetic Data Generated Under Fixed-Posterior Predictive Sampling: Comparison With Plug-in Sampling." *REVSTAT -Statistical Journal*, 15(2): 155-186.
- Klein, Martin and Bimal Sinha. 2016. "Likelihood Based Finite Sample Inference for Singly Imputed Synthetic Data under the Multivariate Normal and Muliple Linear Regression Models." *Journal of Privacy and Confidentiality, 7*, 43-98.
- Klein, Martin and Bimal Sinha. 2015. "Inference for Singly Imputed Synthetic Data Based on Posterior Predictive Sampling under Multivariate Normal and Multiple Linear Regression Models." *Sankhya B: The Indian Journal of Statistics, 77-B*, 293-311.
- Sinha, Bimal and Martin Klein. 2015. "Likelihood-based Inference for Synthetic Data Based on a Normal Model." *Statistics and Probability Letters*, 105, 168-175.
- Klein, Martin, Thomas Mathew, and Bimal Sinha. 2014. "Noise Multiplication for Statistical Disclosure Control of Extreme Values in Log-Normal Regression Samples." *Journal of Privacy and Confidentiality, 6*, 77-125.
- Klein, Martin and Bimal Sinha. 2013. "Statistical Analysis of Noise Multiplied Data Using Multiple Imputation." *Journal of Official Statistics, 29*, 425-465.
- Nayak, Tapan, Bimal Sinha, and Laura Zayatz. 2011. "Statistical Properties of Multiplicative Noise Masking for Confidentiality Protection." *Journal of Official Statistics, 27*, 527-544.
- Gupta, A. Das and Bimal Sinha. 1999. "A New General Interpretation of the Stein Estimate and How it Adapts: Applications." *Journal of Statistical Planning and Inference*, 247-268.
- Mathew, Thomas, A. Niyogi, and Bimal Sinha. 1994. "Improved Nonnegative Estimation of Variance Components in Balanced Multivariate Mixed Models." *Journal of Multivariate Analysis, 51*, 83-101.
- Mathew, Thomas, Bimal Sinha, and L. Zhou. 1993. "Some Statistical Procedures for Combining Independent Tests." *Journal of the American Statistical Association, 88*, 912-919.
- Mathew, Thomas and Bimal Sinha. 1992. "Exact and Optimum Tests in Unbalanced Split-plot Designs under Mixed and Random Models." *Journal of the American Statistical Association, 87*, 192-200.
- Mathew, Thomas, Bimal Sinha, and B. Sutradhar. 1992. "Nonnegative Estimation of Variance Components in Unbalanced Mixed Models with Two Variance Components." *Journal of Multivariate Analysis, 42*, 77-101.
- Mathew, Thomas and Bimal Sinha. 1991. "Towards an Optimum Test for Non-addivity in Tukey's Model." *Journal of Multivariate Analysis, 36*, 68-94.
- Mathew, Thomas and Bimal Sinha. 1988. "Optimum Tests for Fixed Effects and Variance Components in Balanced Models." *Journal of the American Statistical Association, 83*, 133-135.
- Mathew, Thomas and Bimal Sinha. 1988. "Optimum Tests in Unbalanced Two-way Models without Interaction." *Annals of Statistics, 16*, 1727-1740.
- Ghosh, M. and Bimal Sinha. 1988. "Empirical and Hierarchical Bayes Competitors of Preliminary Test Estimators in Two Sample Problems." *Journal of Multivariate Analysis, 27*, 206-227.
- Das, Rita and Bimal Sinha. 1986. "Detection of Outliers with Dispersion Slippage in Elliptically Contoured Distributions." *Annals of Statistics, 14*, 1619-1624.
- Gupta, A. Das and Bimal Sinha. 1986. "Estimation in the Multiparameter Exponential Family: Admissibility and Inadmissibility Results." *Statistics and Decisions, 4*, 101-130.
- Kariya, T. and Bimal Sinha. 1985. "Nonnull and Optimality Robustness of Some Multivariate Tests." *Annals of Statistics, 13*, 1182-1197.
- Sinha, Bimal. 1984. "Detection of Multivariate Outliers in Elliptically Contoured Distributions." *Annals of Statistics, 12*, 1558-1565.
- Sinha, Bimal and S.K. Sarkar. 1984. "Invariant Confidence Sequences for Some Parameters in a General Linear Regression Model." *Annals of Statistics, 12*, 301-310.
- Ghosh, J.K. and Bimal Sinha. 1981. "A Necessary and Sufficient Condition for Second Order Admissibility with Applications to Berkson's Problem." *Annals of Statistics, 9*, 1334-1338.
- Ghosh, J.K., Bimal Sinha, and H.S. Wieand. 1980. "Second Order Efficiency of the MLE wrt Any Bounded Bowl-shaped Loss Function ." *Annals of Statistics, 8*, 506-521.
- Ghosh, M. and Bimal Sinha. 1980. "On the Robustness of Least Squares Procedures in Regression Models." *Journal of Multivariate Analysis, 10*, 332-342.

United States
Census
Bureau

- Sinha, Bimal and H.S. Wieand. 1979. "Union Intersection Test for the Mean Vector when the Covariance Matrix is Totally Reducible." *Journal of the American Statistical Association, 74*, 340-343.
- Ghosh, J.K., Bikas K. Sinha, and Bimal Sinha. 1977. "Multivariate Power Series Distributions and Neyman's Properties for Multinomial." *Journal of Multivariate Analysis, 7*, 397-408.
- Sinha, Bimal and H.S. Wieand. 1977. "Multivariate Nonparametric Tests for Independence." *Journal of Multivariate Analysis, 7*, 272-283.
- Sinha, Bimal. 1976. "On Improved Estimators of the Generalized Variance." *Journal of Multivariate Analysis, 6*, 617-625.
- Ghosh, M., Bimal Sinha, and N. Mukhopadhyay. 1976. "Multivariate Sequential Point Estimation." *Journal of Multivariate Analysis, 6*, 281-294.

Eric Slud

Area Chief of Mathematical Statistics

Contact Information

- 301-763-4991
- eric.v.slud@census.gov, evs@math.umd.edu

Fields of Interest

- Mathematical Statistics
- Sampling Theory
- Stochastic Processes
- Survival Analysis

Education

- Ph.D., Mathematics (Probability), Massachusetts Institute of Technology, 1976
- A.B., Mathematics, Harvard University, 1972

Professional Experience

- Area Chief of Mathematical Statistics, Principal Researcher, U.S. Census Bureau, 2011-Present
- Professor, Statistics Program, Mathematics Department, University of Maryland -- College Park, 1989-Present
- Associate Professor, Mathematics, University of Maryland -- College Park, 1983-1989
- Assistant Professor, University of Maryland -- College Park, 1976-1983

Professional Associations

- [Fellow, American Statistical Association, 2004](#)
- [Fellow, Institute of Mathematical Statistics, 2001](#)

Selected Publications

- Slud, E., Hall, A., and Franco, C. In Press. "Small Area Estimates for Voting Rights Act Section 203(b) Coverage Determinations," *Calcutta Statistical Association Bulletin*.
- Thibaudeau, Yves, Eric Slud, and Y. Cheng. 2020. "Small-Area Estimation of Cross-Classified Gross Flows Using Longitudinal Survey Data." *in P. Lynn (Ed), Methodology of Longitudinal Surveys, 2 New York, NY: Wiley Series in Survey Methodology*.
- Thibaudeau, Yves, Eric Slud, and Y. Cheng. 2020. "Log-Linear Modeling for Estimation of Cross-Classified Small Areas in Longitudinal Surveys." *in P. Lynn (Ed.), Methodology of Longitudinal Surveys 2, New York, NY: Wiley Series in Survey Methodology*.
- Yao, X. and Slud, E. 2019. "Nonexistence of an Unbiased Estimation Function for the Cox Model," *Statistics, and Probability Letters*, 152, 122-127.
- Franco, Carolina, R.J.A. Little, Thomas Louis, and Eric Slud. 2019. "Comparative Study of Confidence Intervals for Proportions in Complex Surveys." *Journal of Survey Statistics and Methodology*, 7.3, 334-364.
- Slud, Eric and Yves Thibaudeau. 2019. "Multi-Outcome Longitudinal Small Area Estimation - A Case Study." *Statistical Theory and Related Fields. Special Issue on Small Area Estimation*, 3, 136-149.
- de Oliveira, V., B. Wang, and Eric Slud. 2018. "Spatial Modeling of Rainfall Accumulated over Short Periods of Time." *Journal of Multivariate Analysis*, 166, 129-149.

- Slud, Eric, I. Vonta, and A. Kagan. 2018. "Combining Estimators of a Common Parameter across Samples." *Statistical Theory and Related Fields*, 2(2), 158-171, published online.
- Ashmead, Robert, Eric Slud, and T. Hughes. 2017. "Adaptive Intervention Methodology for Reduction of Respondent Contact Burden in the American Community Survey." ➡*Journal of Official Statistics*, Vol. 33, No. 4, 2017, pp. 901-919. DOI:10.1515/JOS-2017-0043 ➡.
- Thibaudeau, Yves, Eric Slud, and Alfred Gottschalck. 2017. "Modeling Log-Linear Conditional Probabilities for Estimation in Surveys." *Annals of Applied Statistics, 11, 2*, 680-697.
- Slud, Eric. 2015. "Impact of Mode-based Imputation on ACS Estimates." *American Community Survey Research and Evaluation Memorandum*, #ACSIS-RER-07.
- Shao, J., Eric Slud, Y. Cheng, S. Wang, and Carma Hogue. 2014. "Theoretical and Empirical Properties of Model Assisted Decision-Based Regression Estimators." *Survey Methodology, 40*, 81-104.
- Tang, M., Eric Slud, and R. Pfeiffer. 2014. "Goodness of Fit Tests for Linear Mixed Models." *Journal of Multivariate Analysis, 130*, 176-193.
- Slud, Eric and T. Maiti. 2011. "Small-area Estimation of Survey Data from a Left-censored Fay-Herriot Model." *Journal of Statistical Planning and Inference, 141*, 3520-3535.
- Slud, Eric and M. DeMissie. 2011. "Validity of Regression Meta-analyses Versus Pooled Analyses of Mixed Linear Models." *Mathematics in Engineering, Science and Aerospace, 2*, 251-265.
- Slud, Eric and Yves Thibaudeau. 2010. "Simultaneous Calibration and Nonresponse Adjustment." *Research Report Series, (Statistics #2010-03)*, Center for Statistical Research and Methodology, U.S. Census Bureau, Washington, D.C.
- Slud, Eric and L. Bailey. 2010. "Evaluation and Selection of Models for Attrition Nonresponse Adjustment." *Journal of Official Statistics, 26*, 127-143.
- Slud, Eric and T. Maiti. 2006. "Mean-Squared Error Estimation in Transformed Fay-Herriot Models." *Journal of the Royal Statistical Society Series B, 68*, 239-257.
- Slud, Eric and F. Vonta. 2005. "Efficient Semiparametric Estimators via Modified Profile Likelihood." *Journal of Statistical Planning and Inference, 129*, 339-367.
- Slud, Eric. 1998. "Predictive Models for Decennial Census Household Nonresponse." *Proceedings of the Section on Survey Research Methods of the American Statistical Association*, 272-277.

Approved on: January 1, 2024

Rebecca Steorts
Principal Researcher

Contact Information

- 301-763-4985
- rebecca.carter.steorts@census.gov

Fields of Interest

- Entity resolution (record linkage), privacy-preserving record linkage
- Clustering, Machine learning
- Bayesian methodology and applications
- Small area estimation

Education

- Ph.D., Statistics, Thesis entitled: "Bayes and Empirical Bayes Benchmarking for Small Area Estimation", University of Florida, Gainesville, 2012
- M.S., Mathematical Sciences, Clemson University, 2005
- B.Sc., Mathematics, Davidson College, 2001

Professional Experience

- Principal Researcher, Research Mathematical Statistician, U.S. Census Bureau, 2017-Present
- Assistant Professor, Department of Statistical Science, Duke University, 2015-Present
- Visiting Assistant Professor, Department of Statistics, Carnegie Mellon University, 2012-2015
- Dissertation Fellow, U.S. Census Bureau, 2010-2012

Selected Publications

- Steorts, R. 2023. "A Primer on the Data Cleaning Pipeline," *Journal of Survey Statistics and Methodology*, 11, 553-568.
- Marchant, N.G., Rubinstein, B.I.P., and Steorts, R. 2023, "Bayesian Graphical Entity Resolution Using Exchangeable Random Partition Priors," *Journal of Survey Statistics and Methodology*, 11, 569-596.
- Deo, N., Sanguthevar R., Joyanta B., Soliman, A., Weinberg, D., and Steorts, R. In Press. "Novel Blocking Techniques and Distance Metrics for Record Linkage," *Proceedings of the 25th International Conference on Information Integration and Web Intelligence (iiWAS)*, Lecture Notes in Computer Sciences, Springer.
- Basak J., Soliman A., Deo N., Haase, K., Mathur, A., Park, K., Steorts, R., Weinberg, D., Sahni. S., and Sanguthevar R. 2023. "On Computing the Jaro Similarity Between Two Strings," *Proceedings of the 19th International Symposium on Bioinformatics Research and Applications*, Springer, 31-44.
- Aleshin-Guendel, S. and Steorts, R. In Press. "Monitoring Convergence Diagnostics for Entity Resolution," *Annual Review of Statistics and Its Applications*.
- Mosaferi, S., Ghosh, M., and Steorts, R. In Press. "Measurement Error Models for Small Area Estimation," *Communications and Statistics: Simulation and Computation*.
- Marchant, N., Kaplan, A., Rubenstein, B., Elzar, D., and Steorts, R. 2021. "d-blink: Distributed End-to-End Bayesian Entity Resolution," *Journal of Computational Graphics and Statistics, 30(2),* 406-421.
- Betancourt, B., Zanella, G., and Steorts, R. In Press. "Random Partition Models for Microclustering Tasks," *Journal of the American Statistical Association, Theory and Methods*.
- Steorts, R. Tancredi, A., and Liseo, B. In Press. "Generalized Bayesian Record Linkage and Regression with Exact

Error Propagation," *Privacy in Statistical Databases.*

- Tang, J., Reiter, J., and Steorts, R. In Press. "Bayesian Modeling for Simultaneous Regression and Record Linkage," *Privacy in Statistical Databases (Lecture Notes in Computer Science).*

- Steorts, R., Schmid, T., and Tzavdis, N. In Press. "Smoothing and Benchmarking for Small Area Estimation with Application to Rental Prices in Berlin," *International Statistical Review*.

- Enamorado, T. and Steorts, R. In Press. "Probabilistic Blocking and Distributed Bayesian Entity Resolution," *Privacy in Statistical Databases (Lecture Notes in Computer Science* 12276), ed. Josep Domingo-Ferrer and Krishnamurty Muralidhar, 224-239; \href{https://link.springer.com/book/10.1007/978-3-030-57521-2}{https://doi.org/10.1007/978-3-030-57521-2$_$16}.

- Tancredi, A., Steorts, R., and Liseo, B. 2020. "A Unified Framework for De-Duplication and Population Size Estimation," *Bayesian Analysis, 15:2*, 633-682.

- Binette, O. and Steorts, R. 2020. Discussion of "Multiple-Systems Analysis for the Quantification of Modern Slavery: Classical and Bayesian Approaches," *Journal of the Royal Statistical Society, Series A*.

- Steorts, Rebecca, M. Barnes, and M. Neiswanger. 2017. "Performance Bounds for Graphical Record Linkage." ⬩ *Proceedings of the 20th International Conference on Artificial Intelligence and Statistics (AIStats)*, 54: 298-306.

- Durante, D., N. Mukherjee, and Rebecca Steorts. 2017. "Bayesian Learning of Dynamic Multilayer Networks." *Journal of Machine Learning Research, 18(43)*, 1-29, arxiv:608.02209.

- Steorts, Rebecca, R. Hall, and S.E. Fienberg. 2016. "A Bayesian Approach to Graphical Record Linkage and De-duplication." *Journal of the American Statistical Association, 111(516)*, 1660-1672, arxiv:1312.4645, doi:10.1080/01621459.

- Zanella, G., B. Betancourt, H. Wallach, J. Miller, A. Zaidi, and Rebecca Steorts. 2016. "Flexible Models for Microclusering with Applications to Entity Resolution." *Neural Information Processing Systems (NIPS)*, 1417-1425, arxiv: 1610.09780.

- Steorts, Rebecca. 2015. "Entity Resolution using Emprically Motivated Priors." *Bayesian Analysis, 10(4)*, 849-875, arxiv:1409.0643, doi: 10.1214/15-BA965SI.

- Wehbe, L., A. Ramdas, Rebecca Steorts, and C.R. Shalizi. 2015. "Regularized Brain Reading with Smoothing and Shrinkage Using Bayesian and Frequentist Methods." *Annals of Applied Statistics, 9(4)*, 1997-2022, arxiv:1401.6595, doi:10.1214/15-AOAS837.

- Steorts, Rebecca, R. Hall, and S. Fienberg. 2014. "SMERED: A Bayesian Approach to Graphical Record Linkage and De-duplication, 33." *Artificial Intelligence and Statistics (AIStats)*, 922-930, arxiv:1403.0211.

- Steorts, Rebecca, S. Ventura, M. Sadinle, and S. Fienberg. 2014. "Blocking Comparisons for Record Linkage." In *Privacy in Statistical Databases (Lecture Notes in Computer Science 8744)*, ed. J. Domingo-Ferrer, Springer, 253-268, arxiv:1407.3191, doi:10.1007/978-3-319-11257-2-20.

- Ghosh, M. and Rebecca Steorts. 2013. "Two-stage Bayesian Benchmarking as Applied to Small Area Estimation." *TEST, 22(4)*, 670-687, arxiv:1305.6657, doi: 10.1007/s11749-013-0338-2.

- Steorts, Rebecca and M. Ghosh. 2013. "On Estimation of Mean Squared Errors of Benchmarked Empirical Bayes Estimators." *Statistica Sinica, 23(2)*, 749-767, arxiv:1304.1600, doi:10.5705/ss.2012.053.

- Datta, Gauri, M. Ghosh, Rebecca Steorts, and Jerry Maples. 2010. "Bayesian Benchmarking with Applications to Small Area Estimation." *TEST*, doi: 1007/sll749-010-0218-y.

Yves Thibaudeau
Principal Researcher

Contact Information

- 301-763-1706
- yves.thibaudeau@census.gov

Fields of Interest

- Missing Data
- Imputation
- Record Linkage
- Modeling and Forecasting

Education

- Ph.D., Statistics, Carnegie Mellon University, 1988
- M.S., Statistics, Carnegie Mellon University, 1984
- B.S., Mathematics, McGill University (Canada), 1983
- M.S., Computer Science, Johns Hopkins University, 2001

Professional Experience

- Principal Researcher, Research Mathematical Statistician, U.S. Census Bureau, 1988-Present
- Survey Methodologist, The Gallup Organization, 1995-1996

Professional Associations

- American Statistical Association ⬇➤
- Statistical Society of Canada ⬇➤

Selected Publications

- Thibaudeau, Yves, Eric Slud, and Y. Cheng. 2020. "Small-Area Estimation of Cross-Classified Gross Flows Using Longitudinal Survey Data." *in P. Lynn (Ed), Methodology of Longitudinal Surveys, 2 New York, NY: Wiley Series in Survey Methodology*.
- Slud, Eric and Yves Thibaudeau. 2019. "Multi-Outcome Longitudinal Small Area Estimation - A Case Study." *Statistical Theory and Related Fields. Special Issue on Small Area Estimation*, 3, 136-149.
- Thibaudeau, Yves, Eric Slud, and A. Gottshalck. 2017. "Log-Linear Conditional Probabilities for Prediction in Surveys." *Annals of Applied Statistics*, 11, 680-697.
- Thibaudeau, Yves, Eric Slud, and Alfred Gottschalck. 2017. "Modeling Log-Linear Conditional Probabilities for Estimation in Surveys." *Annals of Applied Statistics, 11, 2*, 680-697.
- Slud, Eric and Yves Thibaudeau. 2010. "Simultaneous Calibration and Nonresponse Adjustment." ⭤*Research Report Series, (Statistics #2010-03)*, Center for Statistical Research and Methodology, U.S. Census Bureau, Washington, D.C.
- Thibaudeau, Yves, J. Mulrow, and J. Shao. 2007. "A Study of Calibration Estimators." *Proceedings of the Survey Research Section of the American Statistical Association*.
- Thibaudeau, Yves. 2002. "Model Explicit Item Imputation for Demographic Categories." *Survey Methodology*, 28, 135-143.

United States
Census
Bureau

- Thibaudeau, Yves. 2000. "Laplace Approximations for Variances of Estimators Based on Categorical Data in Presence of Unreported Items." *Proceedings of the Survey Research Section of the American Statistical Association*.
- Thibaudeau, Yves. 1993. "The Discriminatory Power of Dependency Structures in Record Linkage." *Survey Methodology*, 19, 31-38.
- Thibaudeau, Yves and P.H. Styan. 1983. "Bounds for Chakrabarti's Measure of Imbalance in Experimental Design." *Proceedings of the First International Tampere Seminar on Linear Statistical Models and Their Applications*, T. Pukkila and S. Puntanem, eds.

Approved on: February 25, 2020

Daniel Weinberg
Research Mathematical Statistician

Contact Information

- 301-763-8854
- daniel.weinberg@census.gov

Fields of Interest

- Applied Harmonic Analysis
- Directional Representations
- Image Processing, Remote Sensing, and Machine Learning
- Mathematical Modeling of Biological Systems

Education

- Ph.D., Mathematics, University of Maryland, College Park, 2015
- M.A., Mathematics, University of Maryland, College Park, 2011
- B.A., Mathematics and Chemistry, Johns Hopkins University, 2007

Professional Experience

- Research Mathematical Statistician, U.S. Census Bureau, 2015-Present
- Instructor (Fall), University of Maryland, Department of Mathematics, 2015

Professional Associations

- [Society for Industrial and Applied Mathematics](#) ➡
- [American Mathematical Society](#) ➡

Selected Publications

- Deo, N., Sanguthevar R., Joyanta B., Soliman, A., Weinberg, D., and Steorts, R. In Press. "Novel Blocking Techniques and Distance Metrics for Record Linkage," *Proceedings of the 25th International Conference on Information Integration and Web Intelligence (iiWAS)*, Lecture Notes in Computer Sciences, Springer.
- Basak J., Soliman A., Deo N., Haase, K., Mathur, A., Park, K., Steorts, R., Weinberg, D., Sahni. S., and Sanguthevar R. 2023. "On Computing the Jaro Similarity Between Two Strings," *Proceedings of the 19th International Symposium on Bioinformatics Research and Applications*, Springer, 31-44.
- Wojciech, C., Murphy, J.M., and Weinberg, D. 2018. "Superresolution of Noisy Remotely Sensed Images Through Directional Representations," *IEEE Geoscience and Remote Sensing Letters, 99*, 1-5.
- Czaja, W., A. Hafftka, B. Manning, and Daniel Weinberg. 2015. "Randomized Approximations of Operators and their Spectral Decomposition for Diffusion Based on Embeddings of Heterogeneous Data." *3rd International Workshop on Compressed Sensing Theory and Its Applications to Radar, Sonar and Remote Sensing (CoSeRa)*.
- Bosch, E., W. Czaja, J. Murphy, and Daniel Weinberg. 2015. "Anisotropic Representations for Superresolution of Hyperspectral Data." *in SPIE Defense+Security*.
- Czaja, W., J. Murphy, and Daniel Weinberg. 2015. "Superresolution of Remotely Sensed Images with Anisotropic Features." *Proceedings of Sampling Theory and Applications (SAMPTA)*.
- Weinberg, Daniel and D. Levy. 2014. "Modeling Selective Local Interactions with Memory: Motion on a 2D Lattice." *Physica D 278-279*, 13-30.

- Schuurman, M., Daniel Weinberg, and D. Yarkony. 2007. "On the Simulation of Photoelectron Spectra in Molecules with Conical Intersections and Spin-Orbit Coupling: The Vibronic Spectrum of CH_3S." *Journal of Chemical Physics, 127(10)*, 104309.

Tommy Wright
Research Mathematical Statistician

Contact Information

- 301-763-1702
- tommy.wright@census.gov

Fields of Interest

- Probability Sampling & Estimation; Sample Design; Rankings
- Elementary Applied Probability & Combinatorics
- Apportionment Methods
- Applications of Lagrange's Identity

Education

- Ph.D., Statistics, The Ohio State University, 1977
- -Dissertation, "Bayes Allocation and Sequential Estimation in Stratified Populations", (OSU), 1977
- M.S., Statistics, The Ohio State University, 1975
- M.S., Mathematics, University of Tennessee, 1970
- -Thesis, "On Fully Ordered Groups", (UT), 1970
- B.S., Mathematics, Knoxville College, 1969

Professional Experience

- Research Mathematical Statistician, U. S. Bureau of the Census, 1996-Present
- Chief, Center for Statistical Research and Methodology (formerly Statistical Research Division), U. S. Bureau of the Census, 1996-Present
- Adjunct Faculty, Georgetown University, 2009-Present
- Research Staff, Oak Ridge National Laboratory, 1979-1996
- Adjunct Faculty (Statistics & Mathematics), University of Tennessee, 1977-1995
- Faculty (Mathematics), Knoxville College, 1977-1995

Professional Associations

- Presented, NAM-MAA David H Blackwell Lecture, 2021
- Fellow, American Statistical Association, 1995
- Elected Member, International Statistical Institute, 1989

Selected Publications

- Wright, T. 2021. "From Cauchy-Schwartz to the House of Representatives: Application of Lagrange's Identity," *Mathematics Magazine, Vol 94*, 244-256.
- Wright, T. 2021. "Demystifying Apportionment Computations for the U.S. House of Representatives", *AMSTATNEWS, July*, American Statistical Association, Alexandria, VA, 8-11.
- Wright, T. 2020. "A General Exact Optimal Sample Allocation Algorithm: With Bounded Cost and Bounded Sample Sizes," *Statistics and Probability Letters, Vol 165,* Article 108829.

United States™ Census Bureau

- Klein, M., Wright, T., and Wieczorek, J. 2020. "A Joint Confidence Region for an Overall Ranking of Populations," *Journal of the Royal Statistical Society, Series C, 69, Part 3,* 589-606.
- Wright, Tommy, Martin Klein, and Jerzy Wieczorek. 2019. "A Primer on Visualization for Comparing Populations, Including the Issue of Overlapping Confidence Intervals." *The American Statistician*, Vol 73, No. 2, 165-178.
- Wright, Tommy. 2018. "No Calculations When Observation Can Be Made." *in A.K. Chattopadhyay and G. Chattopadhyay (Eds.), Statistics and Its Applications, Springer Singapore*, 139-154.
- Wright, Tommy. 2017. "Exact Optimal Sample Allocation: More Efficient than Neyman." *Statistics and Probability Letters, 129*, 50-57.
- Wright, Tommy. 2014. "Lagrange's Identity and Congressional Apportionment." *The American Mathematical Monthly, 121*, 523-528.
- Wright, Tommy. 2012. "The Equivalence of Neyman Optimum Allocation for Sampling and Equal Proportions for Apportioning the U.S. House of Representatives." *The American Statistician*, Vol 66, No 4, 217-224.
- Klein, Martin and Tommy Wright. 2011. "Ranking Procedures for Several Normal Populations: An Empirical Investigation." *International Journal of Statistical Sciences, 11*, 37-58.
- Wright, Tommy and G. Cobb. 2005. "Counting and Apportionment Foundations of America's Democracy." In *Statistics: A Guide to the Unknown (4th Edition)*, ed. R. Peck, G. Casella, G. Cobb, R. Hoerl, D. Nolan, R. Starbuck, and H. Stern, Pacific Grove, CA: Duxbury Press, 35-67.
- Wright, Tommy. 2005. "U.S. Census Bureau." In *Encyclopedia of Statistical Sciences, 2nd Edition, Vol. 14*, ed. Balakrishnan, Read, and Vidakovic, New York: John Wiley & Sons, Inc, 8902-8916.
- Wright, Tommy. 2001. "Selected Moments in the Development of Probability Sampling: Theory & Practice." *Newsletter of the Survey of Research Methods Section of the American Statistical Association, Issue 13*, July, pp. 1-6.
- Wright, Tommy. 2000. "Sampling for Follow-up of Nonresponding Households." In *Encyclopedia of the U.S. Census*, ed. Margo J. Anderson, Washington, D.C.: Congressional Quarterly Press, 325-327.
- Wright, Tommy. 2000. "Census 2000: Who Says Counting Is Easy As 1-2-3?" *Government Information Quarterly, Vol. 17, No. 2*, 121-136.
- Wright, Tommy and Howard Hogan. 1999. "Census 2000: Evolution of a Revised Plan." *Chance, Vol. 12, No. 4*, 11-19.
- Wright, Tommy. 1999. "A One-Number Census: Some Related History." *Science, Vol. 283*, 491-492.
- Wright, Tommy. 1999. "Estimation of a Finite Universe Total when a Stratum Is Not Sampled." *Applied Stochastic Models in Business and Industry, 15*, 131-145.
- Wright, Tommy. 1998. "Sampling & Census 2000: The Concepts." *American Scientist, Vol. 86*, 245-253.
- Hu, P.S., Tommy Wright, and T. Esteve. 1998. "Traffic Count Estimates for Short-Term Traffic Monitoring Sites: Simulation Study." *Transportation Research Record #1625, (Planning and Administration; Progress in Transportation Data 1998), pp. 26-34*, Transportation Research Board of the National Research Council, National Academy Press, Washington, D.C..
- Wright, Tommy. 1997. "A Simple Algorithm for Tighter Exact Upper Confidence Bounds with Rare Attributes in Finite Universes." *Statistics and Probability Letters, 36*, 59-67.
- Wright, Tommy and L. Bates. 1996. "A Monte Carlo Study Comparing CensusPES and CensusPlus When There Is the Possibility of Undercounting." *American Journal of Mathematical and Management Sciences, Vol. 16*, 395-462.
- Moline, G.R., J.J. Beauchamp, and Tommy Wright. 1996. "Determining An Optimal Sampling Frequency for Measuring Bulk Temporal Changes in Groundwater Quality." *Ground Water, Vol. 34, 4*, 579-587.
- Wright, Tommy. 1992. "Lagrange's Identity Reveals the Correlation and Straight Line Connection." *The American Statistician, 46*, 106-107.
- Wright, Tommy. 1995. "Pascal's Triangle Gets Its Genes from Stirling Numbers of the First Kind." *The College Mathematics Journal, 26, No. 5*, 369-371.
- Wright, Tommy. 1992. "A Note on Sampling to Locate Rare Defectives with Strong Prior Evidence." *Biometrika, 79, No. 4*, 685-691.
- Miaou, S. -P., P.S. Hu, Tommy Wright, A.K. Rathi, and S.C. Davis. 1992. "Relationship Between Truck Accidents and Highway Geometric Design: A Poisson Regression Approach." *Transportation Research Record #13761*, pp. 10-18, Transportation Research Board of National Research Council, Washington, D.C..
- Wright, Tommy. 1991. *Exact Confidence Bounds When Sampling from Small Finite Universes: An Easy Reference Based on the Hypergeometric Distribution (Lecture Notes in Statistics #66).* New York: Springer-Verlag.

- Hu, P.S., Tommy Wright, S. -P. Miaou, R. Gorman, and S.C. Davis. 1991. "A Study of Interstate Motor Carrier Vehicle Miles of Travel." *Transportation Research, Part A, Vol. 25-A*, 451-463.
- Wright, Tommy. 1990. "Probability Proportional to Size Sampling Using Ranks," *Communications in Statistics: Theory and Methods, A19, No. 1*, 347-362.
- Wright, Tommy. 1990. "When Zero Defectives Appear in the Sample: Upper Bounds on Confidence Coefficients of Upper Bounds." *The American Statistician, 44, No. 1*, 40-41.
- Wright, Tommy. 1989. "A Note on Pascal's Triangle and Simple Random Sampling." *The College Mathematics Journal, 20, No. 1*, 59-66.
- Wright, Tommy. 1988. "On Some Properties of Variable Size Simple Random Sampling and A Limit Theorum." *Communications in Statistics: Theory and Methods, 17, No. 9*, 2997-3016.
- Wright, Tommy. 1988. "A Note on Optimal Allocation Which Leads to An Ordering of the Family of Beta Prior Distributions." *Communications in Statistics: Theory and Methods, 17, No. 1*, 123-138.
- Wright, Tommy and H. Tsao. 1985. "On an Optimal Solution for Maximizing the Probability of Retention in PPS Sampling." *Journal of Linear Algebra and Its Applications, 67*, 67-80.
- Wright, Tommy and H. Tsao. 1985. "Some Useful Notes on Simple Random Sampling." *The Journal of Quality Technology, 17, No. 2*, 67-73.
- Wright, Tommy and H. Tsao. 1983. "A Frame on Frames: An Annotated Bibliography." In *Statistical Methods and the Improvement of Data Quality*, ed. T. Wright, 25-72, New York: Academic Press.
- Chernick, M. R. and Tommy Wright. 1983. "Estimation of a Population Mean with Two-Way Stratification Using a Systematic Allocation Scheme." *Journal of Statistical Planning and Inference, 7*, 219-231.
- Wright, Tommy. 1983. *Statistical Methods and the Improvement of Data Quality.* (Editor), New York, NY: Academic Press.
- Wright, Tommy. 1983. "On Optimal Allocation of the Sample with Poisson Strata Using Gamma Prior Distributions." *Communications in Statistics: Theory and Methods, 12*, 409-426.
- Tsao, H. and Tommy Wright. 1983. "On the Maximum Ratio: A Tool for Assisting Inaccuracy Assessment." *The American Statistician, 37*, 339-342.
- Wright, Tommy. 1982. "An Inverse Sampled Bernoulli (ISpB) Procedure for Estimation of a Population Proportion with Nuclear Material Applications." *American Journal of Mathematical and Management Sciences, 2*, 123-134.
- Wright, Tommy. 1979. "Truncated Bayes Stratified Sequential Procedures." In *Optimizing Methods in Statistics*, ed. J.S. Rustagi, New York, NY: Academic Press, 525-540.

Nathan Yau
Research Mathematical Statistician

Contact Information

- 301-763-1702
- nathan.yau@census.gov; nathan@flowingdata.com

Fields of Interest

- Data Visualization
- Data for Non-professionals
- Information Design
- Self-surveillence

Education

- Ph.D., Statistics, University of California at Los Angeles, 2013
- -Dissertation, "An Online Tool for Personal Data Collection and Exploration"
- M.S., Statistics, University of California at Los Angeles, 2007
- B.S., Electrical Engineering and Computer Sciences, Minor in Statistics, University of California at Berkeley, 2004

Professional Experience

- Research Mathematical Statistician, U.S. Census Bureau, 2014-Present
- Editor, FlowingData, 2007-Present

Selected Publications

- Yau, Nathan. 2013. *Data Points: Visualization that Means Something.* Wiley, Inc.
- Yau, Nathan. 2011. *Visualize This: The FlowingData Guide to Design, Visualization, and Statistics.* Wiley, Inc.
- Yau, Nathan. 2009. "Seeing Your Life in Data." *Beautiful Data*, O'Reilly Media, Inc.
- Yau, Nathan and J. Schneider. 2009. "Self-Surveillence." *Bulletin of the American Society for Information Science and Technology, Vol. 35, No. 5*, 24-30.
- Mun, M., S. Reddy, K. Shilton, Nathan Yau, J. Burke, D. Estrin, M. Hansen, E. Howard, R. West, and P. Boda. 2009. "PEIR, The Personal Environmental Impact Report as a Platform for Participatory Sensing Systems Research." *MobiSys*.
- Reddy, S., G. Chen, B. Fulkerson, S. J. Kim, U. Park, Nathan Yau, J. Cho, M. Hansen, and J. Heideman. 2007. "Sensor-Internet Share and Search: Enabling Collaboration of Citizen Scientists." *Data Sharing and Interoperability on the World-wide Sensor Web, IPSN 2007*.
- Chen, G., Nathan Yau, M. Hansen, and D. Estrin. 2007. "Sharing Sensor Network Data." *CENS Technical Report, No. 71*.
- Chang, K., Nathan Yau, M. Hansen, and D. Estrin. 2006. "SensorBase.org--A Centralized Repository to Slog Sensor Network Data." *DCOSS/Euro-American Workshop on Middleware for Sensor Networks Proceedings*.
- Gould, R. and Nathan Yau. 2006. "The Journal of Technicological Innovations in Statistics Education." *Statistical Computing and Graphics Newsletter, Volume 17, No. 1*.

United States **Census** Bureau