

Daniel Manrique-Vallier

- CONTACT INFORMATION** Department of Statistics Phone: (812) 856-7832
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919 E. 10th Street, Suite 104 Homepage: <http://mypage.iu.edu/~dmanriqu/>
Bloomington, IN 47405
- RESEARCH INTERESTS** Development of models and inference methods to analyze complex data, with emphasis in the social sciences and public policy. Specific areas include: Missing data, Latent structure models, Mixed Membership models, Bayesian non parametric models, Finite populations, Truncated contingency tables, Discrete longitudinal data, Multiple-Capture methods, MCMC algorithms for Bayesian posterior inference, Applications to Human Rights violations measurement.
- EDUCATION** **Carnegie Mellon University, Department of Statistics** (2005–2010)
Ph.D. Statistics (2010)
Dissertation: *Longitudinal Mixed Membership Models with Applications to Disability Survey Data*. Advisor: Stephen E. Fienberg.
M.Sc. Statistics (2006)
Universidad Nacional Mayor de San Marcos (1999–2000)
Completed studies of the Master Program in Philosophy of Science
Pontificia Universidad Católica del Perú (1991–1996)
Professional Title of Electrical Engineer (2005).
B.Sc. Electrical Engineering (1996). With Honors.
- ACADEMIC POSITIONS** **Indiana University, Department of Statistics**
Associate Professor (Jul. 2019–)
Assistant Professor (Aug. 2013–Jul. 2019)
Duke University, Department of Statistical Science and Social Science Research Institute (Sep. 2010–Jul. 2013)
Post Doctoral Associate. Supervisor: Jerome P. Reiter
- PUBLICATIONS (PEER REVIEWED)**
1. **MANRIQUE-VALLIER, D.** (2020) “Review of capture-recapture methods for the social and medical sciences,” *The American Statistician*, **74**(2):207–208.
 2. **JOHNDROW, J.E., LUM, K., AND MANRIQUE-VALLIER, D.** (2019) “Low-risk population size estimates in the presence of capture heterogeneity,” *Biometrika*, **106**(1):197–210, ISSN 0006-3444.
 3. **MANRIQUE-VALLIER, D. AND BALL, P.** (2019) “Reality and risk: A refutation of s. rendón’s analysis of the peruvian truth and reconciliation commission’s conflict mortality study,” *Research & Politics*, **6**(1):2053168019835628.

4. MANRIQUE-VALLIER, D. AND HU, J. (2018) “Bayesian nonparametric generation of fully synthetic multivariate categorical data in the presence of structural zeros,” *Journal of the Royal Statistical Society: Series A (Statistics in Society)*.
5. MANRIQUE-VALLIER, D. AND REITER, J.P. (2017) “Bayesian simultaneous edit and imputation for multivariate categorical data,” *Journal of the American Statistical Association*, **112**(520):1708–1719.
6. MANRIQUE-VALLIER, D. (2016) “Bayesian population size estimation using dirichlet process mixtures,” *Biometrics*, **72**(4):1246–1254.
7. CARRIG, M.M., MANRIQUE-VALLIER, D., RANBY, K.W., REITER, J.P., AND HOYLE, R.H. (2015) “A nonparametric, multiple imputation-based method for the retrospective integration of data sets,” *Multivariate Behavioral Research*, **50**(4):383–397.
8. MANRIQUE-VALLIER, D. (2014a) “Longitudinal mixed membership trajectory models for disability survey data,” *Annals of Applied Statistics*, **8**:2268–2291.
9. MANRIQUE-VALLIER, D. AND REITER, J.P. (2014b) “Bayesian multiple imputation for large-scale categorical data with structural zeros,” *Survey Methodology*, **40**(1):125–134.
10. MANRIQUE-VALLIER, D. AND REITER, J.P. (2014a) “Bayesian estimation of discrete multivariate latent structure models with structural zeros,” *Journal of Computational and Graphical Statistics*, **23**(4):1061–1079.
11. MANRIQUE-VALLIER, D. (2014b) “Mixed membership trajectory models,” in E.M. Airoldi, D.M. Blei, E.A. Erosheva, and S.E. Fienberg (eds.), *Handbook of Mixed Membership Models and Their Applications*, Chapman & Hall/CRC, 173–187.
12. GROSS, J.H. AND MANRIQUE-VALLIER, D. (2014) “A mixed membership approach to political ideology,” in E.M. Airoldi, D.M. Blei, E.A. Erosheva, and S.E. Fienberg (eds.), *Handbook of Mixed Membership Models and Their Applications*, Handbooks of Modern Statistical Methods, Chapman & Hall/CRC, 119–138.
13. MANRIQUE-VALLIER, D. AND REITER, J.P. (2012) “Estimating identification disclosure risk using mixed membership models,” *Journal of the American Statistical Association*, **107**(500):1385–1394.
14. FIENBERG, S.E. AND MANRIQUE-VALLIER, D. (2009) “Integrated methodology for multiple systems estimation and record linkage using a missing data formulation,” *ASA-Advances in Statistical Analysis*, **93**(1):49–60.
15. MANRIQUE-VALLIER, D. AND FIENBERG, S. (2008) “Population size estimation using individual level mixture models,” *Biometrical Journal*, **50**(6):1051–1063.

PUBLICATIONS
(OTHER)

1. MANRIQUE-VALLIER, D., PRICE, M., AND GOHDES, A. (2013) “Multiple systems estimation techniques for estimating casualties in armed conflicts,” in T.B. Seybolt, J.D. Aronson, and B. Fischhoff (eds.), *Counting Civilian Casualties: An Introduction to Recording and Estimating Nonmilitary Deaths in Conflicts*, Studies in Strategic Peacebuilding, chap. 9, US: Oxford University Press, 165–182.
2. FIENBERG, S.E. AND MANRIQUE-VALLIER, D. (2011) “Log linear model methods,” in R. Keneth and S. Salini (eds.), *Modern Analysis of Customer Surveys*, chap. 10, UK: John Wiley & Sons, 217–229.

3. **MANRIQUE-VALLIER, D.** AND FIENBERG, S. (2009) “Longitudinal mixed-membership models for survey data on disability,” in *Proceedings of the XXVth International Symposium on Methodology Issues*, Statistics Canada, Statistics Canada.
4. BALL, P., ASHER, J., SULMONT, D., AND **MANRIQUE, D.** (2003) “How many peruvians have died? An estimate of the total number of victims killed or disappeared in the armed internal conflict between 1980 and 2000,” AAAS. Report to the Peruvian Truth and Reconciliation Commission (CVR). Also published as Anexo 2 (*Anexo Estadístico*) of CVR Report.

SUBMITTED
AND WORKING
PAPERS

1. **MANRIQUE-VALLIER, D.**, BALL, PATRICK, AND SADINLE, M. (2019) “Capture-Recapture for Casualty Estimation and Beyond: Recent Advances and Research Directions. (Under Review)”
2. **MANRIQUE-VALLIER, D.**, BALL, PATRICK, AND SULMONT, D. (2019) “Estimating the Number of Fatal Victims of the Peruvian Internal Armed Conflict, 1980-2000: an application of modern multi-list Capture-Recapture techniques. (Under Review)”

OTHER
CURRENT
PROJECTS

1. Longitudinal Modeling University Student Outcomes (with Giancarlo Sal y Rosas)
2. Disclosure Risk Estimation in Mixed Multivariate Data (with Xuefu Wang)
3. Missing data in Electronic Health Records (with Yajuan Si)
4. Bayesian approaches to financial auditing (with Andrew Womack, Lei Ding and Miguel Pebes Trujillo)
5. Bayesian approaches to financial auditing (with Andrew Womack and Lei Ding)

PROFESSIONAL
SERVICE

Associate Editor

Journal of Computational and Graphical Statistics (2016-)

Referee

Biometrika, Journal of the American Statistical Association, Biometrics, Annals of Applied Statistics, Journal of the Royal Statistical Society series A, Journal of the Royal Statistical Society series B, Journal of Computational and Graphical Statistics, Electronic Journal of Statistics, Bayesian Analysis, Statistical Methods in Medical Research, The American Statistician, Annual Review of Statistics and its Application, Bioinformatics, Journal of Official Statistics, Biometrical Journal, Psychometrika, Journal of Educational and Behavioral Statistics, Advances in Data Analysis and Classification, Revista Matematica Complutense.

Affiliations

Institute of Mathematical Statistics
American Statistical Association.

EXTERNAL
FUNDING

1. “Collaboration for Statistical Decision Analysis in Auditing”, *Deloitte & Touche*, Co-PI, \$356,000 (2017–2020)

INVITED
PRESENTATIONS

1. “Bayesian Simultaneous Edit and Imputation for Categorical Microdata”, VI Latin American Conference on Bayesian Statistics (COBAL), ISBA/PUCP, Lima, Peru, June 2019.

2. “Bayesian Simultaneous Edit and Imputation for Categorical Microdata”, Departmental Seminar, Department of Biostatistics, University of Louisville, Louisville, KY, April 2019.
3. “An Accidental Statistician”. ASA StatFest satellite event, Purdue University, West Lafayette, IN, September 2018.
4. “Estimating the Number of Fatal Victims of the Peruvian Internal Armed Conflict, 1980-2000: new analyses and results”. ENAR spring meeting, Atlanta, GA, March 2018.
5. “Bayesian Simultaneous Edit and Imputation for Categorical Microdata”, Mathematical Statistics Seminar, Department of Statistics, Purdue University, West Lafayette, IN, February 2017.
6. “Population Size Estimation Using Dirichlet Process Mixtures”, Consultation on Estimating the Size of Key Populations in Resource-Limited Settings, Centers For Disease Control and Prevention (CDC), Atlanta, GA, January 2017.
7. “Multiple-Recapture Estimation of Casualties in Armed Conflicts Using Dirichlet Process Mixtures”, Quantitative Data and Human Rights Conference, The Kennan Institute for Ethics, Duke University, Durham, NC, May 2016.
8. “Completeness of Death Reporting in Armed Conflict Situations”, Towards the next generation of record-linkage studies to advance data quality assessment of civil registration systems in low- and middle-income countries, IUSSP Panel on Innovations in Strengthening Civil Registration & Vital Statistics Systems and World Bank Group, Washington DC, April 2016.
9. “Edición e Imputación Simultáneas en Datos Categóricos”. Pontificia Universidad Católica del Perú, Lima, Perú, December 2014.
10. “Bayesian Multiple-Recapture Estimation of Casualties in Armed Conflicts Using Non-Parametric Mixture Models”. Joint Statistical Meetings, Boston, MA, August 2014.
11. “Trajectory Grade of Membership Models for Survey Data on Disability”. Department of Bioinformatics and Biostatistics, University of Louisville, KY, February 2014.
12. “Longitudinal Mixed Membership Trajectory Models for Survey Data on Disability”. SAMSI Computational Methods for Censuses and Surveys Workshop, Washington DC, January 2014.
13. “Estimation of Probabilities in Large Incomplete Contingency Tables”. Department of Mathematics and Statistics, UNC Charlotte, Charlotte, NC, February 2013.
14. “Estimation of Probabilities in Large Incomplete Contingency Tables”. Department of Statistics, Yale University, New Haven, CT, February 2013.
15. “Estimation of Probabilities in Large Incomplete Contingency Tables Using Semi-Parametric Mixture Models”. Department of Statistics, University of Missouri, Columbia, MO, February 2013.
16. “Estimation of Probabilities in Large Incomplete Contingency Tables Using Semi-Parametric Mixture Models”. Department of Statistics, Indiana University, Bloomington, IN, January 2013.
17. “Estimation of Probabilities in Large Incomplete Contingency Tables Using Semi-Parametric Mixture Models”. Department of Statistics, Ohio State University, OH, January 2013.

18. “Estimation of Probabilities in Large Incomplete Contingency Tables Using Semi-Parametric Mixture Models”. School of Statistics, University of Minnesota, Minneapolis, MN, November 2012.
19. “Estimation of Probabilities in Large Incomplete Contingency Tables”. Department of Statistics, Virginia Tech, Blacksburg, VA, November 2012.
20. “Estimating Identification Disclosure Risk Using Mixed Membership Models”. Joint Statistical Meetings, San Diego, CA., July 2012.
21. “Longitudinal Mixed Membership Trajectory Models for Survey Data on Disability”. Department of Statistics, Ohio State University, OH, March 2012.
22. “Longitudinal Mixed Membership Trajectory Models for Survey Data on Disability”. Department of Human Development, Measurement and Statistics Program, Teachers College, Columbia University, NY, February 2012.
23. “Longitudinal Mixed Membership Trajectory Models for Survey Data on Disability”. Department of Mathematics and Statistics, University of Guelph, Guelph, ON, Canada, April 2010.
24. “Longitudinal Mixed Membership Trajectory Models for Survey Data on Disability”. Department of Mathematics and Statistics, University of Saskatchewan, Saskatoon, SK, Canada, March 2010.
25. “Longitudinal Mixed Membership Trajectory Models for Survey Data on Disability”. Department of Mathematics and Statistics, University of Cincinnati, Cincinnati, OH, February 2010.
26. “Multiple-Recapture Techniques for the Estimation of Fatal Victims in Armed Conflicts”. International Conference on Recording and Estimation of Casualties, Carnegie Mellon University and University of Pittsburgh, Pittsburgh, PA, October 2009.
27. “Longitudinal Modeling of the National Long Term Care Survey: 1982 to 2004”. The 2004 Wave of National Long Term Care Survey: New Research Directions, The National Archive of Computerized Data on Aging, Bethesda, MD, May 2009.
28. “Designing Questionnaires for Human Rights Violations Measurement”. Joint Statistical Meetings, Minneapolis, MN, August 2005.

CONTRIBUTED
AND OTHER
PRESENTATIONS

1. “Bayesian Simultaneous Edit and Imputation for Categorical Microdata”. Joint Statistical Meetings, Seattle, WA, August 2015. (topic contributed)
2. “Simultaneous Edit-Imputation for Categorical Microdata”. Federal Committee on Statistical Methodology Research Conference, Washington DC, November 2013.
3. “Disclosure Risk Estimation Using Truncated Regularized Latent Class Models”. International Conference on Advances in Interdisciplinary Statistics and Combinatorics. Greensboro, NC, October 2012.
4. “Multiple Recapture Estimation in the Presence of Unobserved Heterogeneity Using a Soft-Classification Approach”. Joint Statistical Meetings, Miami Beach, FL, August 2011. (topic contributed)
5. “Mixed-Membership Models for Longitudinal Data on Disability”. XXVth International Symposium on Methodology Issues, Statistics Canada, Gatineau, QC, Canada, October 2009.
6. “How many Peruvians have died. An estimation of the total number of people killed or disappeared during the internal Peruvian conflict 1980-2000” (Poster and talk). Latin American Congress of Probability and Statistics (CLAPEM-X), Lima, Perú, February 2007.

- INVITED PARTICIPATION IN WORKSHOPS
1. Discussant in Seminar “Mortality Data in Humanitarian Crises: Paths Forward for Civilian Protection Agenda”. Radcliffe Institute For Advanced Study, Harvard University, Cambridge, MA, March 2016.
- SOFTWARE
1. **Manrique-Vallier, D.** (2016), “*LCMCR: Bayesian Non-Parametric Latent-Class Capture-Recapture*”, R Package.
 2. Wang Q., **Manrique-Vallier, D.**, Reiter J., and Hu, J. (2014), “*NPBayesImpute: Non-Parametric Bayesian Multiple Imputation for Categorical Data*”, R Package.
- UNIVERSITY SERVICE
- Indiana University, Department of Statistics (2013–)**
 Graduate Studies Director (2019–)
 Departmental Executive Committee (2016–2017, 2018–2019)
 Graduate Studies Committee (2013–)
 Colloquium Committee (2013–2015)
 Faculty Hiring Committee (2013, 2014, 2015, 2017, 2019)
- STUDENT ADVISING
- Indiana University, Department of Statistics (2013–)**
 Nicholas Bussberg (PhD thesis committee, 2018–)
 Xuefu Wang (PhD thesis advisor, Statistics, Graduated 2019)
 Zikun Yang (PhD thesis committee, Statistics, Graduated 2019)
 Etienne Nzabarushimana (PhD examination committee, Computer Science, 2017)
 Miguel Pebes Trujillo (PhD examination advisor, Statistics, 2017–2018)
 Francis Jo (MS thesis committee, Statistics, 2018–)
 Minh Le (MS thesis committee, Statistics, 2018–)
 Jee Hwang Yoon (MS thesis committee, Statistics, 2017)
 Julie England (MS thesis committee, Statistics, 2017)
 Scott Brown (MS thesis committee, Statistics, 2016)
 Yucong Jiang (PhD examination committee, Computer Science, 2015)
- TEACHING
- Indiana University, Department of Statistics (2013–)**
 Instructor
 STAT S320/S350 Introduction to Statistical Inference (SP2017, SP2018)
 STAT S611 Applied Statistical Computing (FA2015, FA2016, FA2018, SP2020)
 STAT S710 Statistical Computing (SP2015)
 STAT S481/S681 Advanced Topics in Bayesian Theory and Modeling (SP2014).
 STAT S426/S626 Bayesian Theory and Data Analysis (FA2013, FA2014, SP2016, SP2019, FA2019)
- Carnegie Mellon University, Department of Statistics (2005–2010)**
 Instructor
 Graduate Summer Seminar in Mathematical Analysis (2008, 2009 and 2010)
 Teaching assistant (graduate level)
 Regression Analysis; Statistical Computing; Bayesian Data Analysis; and Discrete Multivariate Analysis
 Teaching assistant (undergraduate level)
 Advanced Data Analysis; Statistical Reasoning and Practice; Data Mining; and Sampling, Surveys and Society

Pontificia Universidad Católica del Perú, Departments of Electronics and Informatics (1998–2003)

Teaching Assistant (undergraduate level)

C programming language; Topics in Software design; Communications Theory; and Computer Architecture.

OTHER WORK EXPERIENCE **The Asia Foundation, Sri Lanka**

Consultant (Jan. and Jul., 2006)

Provided technical assistance in information systems integration and statistical analyses for human rights violations data.

Peruvian Agency of International Cooperation, Peru

Consultant (May 2005 – Jul. 2005)

Prepared lists of victims of the Peruvian Internal Armed Conflict (1980-2000) based on complex queries to the Peruvian Truth and Reconciliation Commission database. Wrote technical documentation.

Ministry of Economy and Finances, Peru

Consultant (Apr. 2004 – Sep. 2004)

Systematized and evaluated information systems in the Health, Education and Women and Social Development ministries. Analyzed data requirements for constructing social measurement indicators. Provided technical assistance in statistical analyses.

Truth and Reconciliation Commission, Peru

Technical Manager for Databases Transference (Sep. 2003 – Dec. 2003)

Conducted the transference of the databases administrated by the Truth and Reconciliation Commission to the Ombudsman Office. Wrote the complete technical documentation for the Truth Commission Information System. Conducted training sessions with the technical staff of the Ombudsman Office. Provided support for the edition of the Truth Commission's final report.

Database Manager (Sep. 2001 – Aug. 2003)

Analyzed, designed, developed and administrated an Information System for the collection, recording and processing of information on crimes and human rights violations. This system allowed the analysis and management of nearly 17,000 testimonies collected nationwide. Led integration of five additional databases to the main system. Co-authored a statistical study estimating the total number of fatal victims of the Peruvian Internal Armed Conflict. Collaborated on the interdisciplinary team that designed the overall Truth Commission's nation-wide investigation.

LANGUAGES English: Fluent.
Spanish: Native speaker.

Bloomington, May 24, 2020