HOWARD D. BONDELL

Associate Professor of Statistics
Co-Director of Graduate Programs
North Carolina State University

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Education

Rutgers University, Piscataway, NJ
Ph.D., Statistics, October 2005.
Dissertation Title: *Robust Logistic Regression via the Case-Control Formulation.*
Advisor: *David E. Tyler*

M.S., Statistics, 2002.
B.A., Mathematics, 1998.

State of New Jersey, Department of Education
K-12 Mathematics Teaching Certification, 1998.

Research Interests

Variable and Model Selection, Classification and Clustering, Robust Estimation, Nonparametric Smoothing and Regression, Regularization and Bayesian Methods.

Professional Experience

North Carolina State University, Department of Statistics
Co-Director of Graduate Programs, 2013-present.
Associate Professor, 2011-present.
Assistant Professor, 2005-2011.

University of Technology Sydney, School of Mathematics and Statistics, NSW, Australia
Visiting Associate Professor, 2013.

Center for Mathematics, Informatics, and Statistics, CSIRO, North Ryde, NSW, Australia
Visiting Research Scientist, 2013.

Rutgers University, Department of Statistics
Graduate Research Assistant, 2003-2005.
Statistical Consultant, 2002-2005.
Part-Time Instructor, 2000-2005.

National Institutes of Health, Institute of Child Health and Human Development
Research Internship, 2003. Division of Epidemiology, Statistics, and Prevention.

Point Pleasant Borough High School, Point Pleasant, NJ
High School Mathematics Teacher, 1998-2000.

Teaching Experience

Graduate Courses Taught: Fundamentals of Linear Models, Applied Least Squares, Topics in Model Selection, Theory of Statistical Inference, Regression Analysis, Design of Experiments, Statistical Methods in the Biological Sciences.

Undergraduate Courses Taught: Probability and Statistics for Engineers, Basic Statistics for Research, Basic Statistics for Business, Regression Analysis, Statistical Computing, Calculus I, Calculus II, Pre-Calculus.

High School Courses Taught: AP Calculus, Pre-Calculus, Algebra I and II, Geometry.

Editorial Service

Associate Editor:
Biostatistics, 2010-present.
Journal of the American Statistical Association: Theory and Methods, 2008-present.
Biometrics, 2008-2014.

Consulting Editor:
Journal of Emergency Nursing, 2003-2008.

Reviewer:
Annals of Applied Statistics, Annals of Statistics, Biometrics, Biometrika, Communications in Statistics, Computational Statistics and Data Analysis, Electronic Journal of Statistics, Journal of the American Statistical Association, Journal of Computational and Graphical Statistics, Journal of Multivariate Analysis, Journal of Statistical Planning and Inference, Journal of Statistical Research, Journal of the Royal Statistical Society Series B, Statistics and Computing, TEST, National Science Foundation.

Other Professional Service

North Carolina State University
Co-Director of Graduate Programs, 2013-present.
Search Committee, 2007-2008, 2011-2012 (chair).
Prelim Exam Committee, 2008, 2011.
Course and Curriculum Committee, 2006-present.
Basic Exam Committee, 2007, 2010 (chair).
Seminar Committee, 2006-2008, 2009-2010.

American Statistical Association
Program Chair, Section on Statistical Learning and Data Mining, 2015-2016.
Chair for Continuing Education, Section on Statistical Learning and Data Mining, 2012-present.
Student Paper Award Committee, JSM, 2012, 2013.
Invited Session organizer, JSM, 2006, 2007, 2011.
Local Assistance Committee, JSM, 2002.

Statistical and Applied Mathematical Sciences Institute (SAMSI)
NC State University Directorate Liaison, 2010-2014.

Biometric Society, ENAR
Invited session organizer, ENAR, 2006, 2010.

International Conference on Artificial Intelligence and Statistics
Senior Program Committee, AISTATS, 2011.

PhD Students Supervised

Arun Krishna --- May 2009 (Biostatistician, Novartis)
Dhruv Sharma --- May 2010 (Research Associate, Michigan State University)
Funda Gunes --- May 2010 (Developer, SAS)
Meg Koehler-Neely --- August 2011 (Assistant Professor, Duke University)
Liewen Jiang --- May 2012 (Biostatistician, Pfizer)
Justin Post --- May 2012 (Assistant Professor, NC State University)
Chen-Yen Lin --- August 2012 (Biostatistician, Eli Lilly)
Dehan Kong --- August 2013 (Post-doctoral Researcher, UNC-Chapel Hill Biostatistics)
Na Zhang --- August 2014 (Biostatistician, Glaxo-Smith-Kline)
Tian Chen --- May 2015
Kehui Wang --- August 2015
Lixia Zhang --- In progress
Anthony Franklin --- In progress
Ze Xiong --- In progress
Zhongkai Liu --- In progress
Yingzi Xu --- In progress
Yan Zhang --- In progress
Brian Naughton --- In progress
Yiqing Tian --- In progress

Recent Presentations

Joint Statistical Meetings, *Seattle, WA,* August 2015.
Quality & Productivity Research Conference, *Raleigh, NC,* June 2015.
Frontiers in Applied & Computational Mathematics, *Newark, NJ,* June 2015.
Joint Statistical Meetings, *Boston, MA,* August 2014.
UNC – Chapel Hill, Dept. of Biostatistics, *Chapel Hill, NC,* March 2014.
MD Anderson Cancer Center, Dept. of Biostatistics, *Houston, TX,* October 2013.
Joint Statistical Meetings, *Montreal, Quebec, Canada,* August 2013.
Sydney University, Dept. of Math and Statistics, *Sydney, NSW, Australia*, May 2013.
University of Queensland, Dept. of Math and Statistics, *Brisbane, QLD, Australia*, May 2013.
Center for Mathematics, Informatics, Statistics, CSIRO, *North Ryde, NSW, Australia*, March 2013.
Univ. of Technology Sydney, Dept. of Math and Statistics, *Sydney, NSW, Australia*, March 2013.
University of Melbourne, Dept. of Math and Statistics, *Melbourne, VIC, Australia*, February 2013.
Meeting the Challenges in High Dimensions Workshop, *Singapore*, October 2012.
Large Scale Statistical Inference and Learning Workshop, *Minneapolis, MN,* April 2012.
Georgia Tech University, Dept. of Industrial and Systems Engineering, *Atlanta, GA*, March 2012.
Challenges in High Dimensional Data Workshop, *Banff, Canada*, December 2011.
Florida State University, Dept. of Statistics, *Tallahassee, FL*, October 2011.
International Conference on Robust Statistics, *Valladolid, Spain*, July 2011.
Chinese Statistical Association Applied Statistics Symposium, *New York, NY*, June 2011.
Duke University, Dept. of Statistical Science, *Durham, NC,* March 2011.
ENAR Spring Meetings, *Miami, FL,* March 2011.
University of South Carolina, Dept. of Statistics, *Columbia, SC,* October, 2010.
ENAR Spring Meetings, *New Orleans, LA,* March 2010.
Rutgers University, Dept. of Statistics, *Piscataway, NJ,* December 2009.
NIH/NICHD Division of Epidemiology, Statistics, and Prevention, *Rockville, MD,* August 2009.
Joint Statistical Meetings, *Washington, DC,* August 2009.
ENAR Spring Meeting, *San Antonio, TX,* March 2009.
Interface 2008, *Durham, NC,* May 2008.
International Conference on Interdisciplinary Statistics, *Greensboro, NC,* October 2007.
Joint Statistical Meetings, *Salt Lake City, UT,* July 2007.
SRCOS / ASA Southern Regional Conference, *Richmond, VA,* June 2007.
SAMSI / NCAR Workshop on Applications to Computer Models, *Boulder, CO*, May, 2007.

Current External Funding

National Science Foundation - DMS 1308400, 2013-2017
Role: Individual Grant
(*Principal Investigator:* Howard Bondell, Total Amount: $149,999)

National Institutes of Health – P01 CA142538, 2010-2015 and 2015-2020
Role: Co-investigator
(*Principal Investigators:* Michael Kosorok, Marie Davidian, and Stephen George, Total Amount: $4,526,516)

Previous External Funding

National Science Foundation - DMS 1005612, 2010-2014
Role: Individual Grant
(*Principal Investigator:* Howard Bondell, Total Amount: $130,000)

National Institutes of Health - R01 MH84022, 2009-2013
Role: Co-investigator
(*Principal Investigator:* Jung-Ying Tzeng, Total Amount: $1,111,615)

National Science Foundation - DMS 0705968, 2007-2011
Role: Individual Grant
(*Principal Investigator:* Howard Bondell, Total Amount: $139,999)

NCSU Faculty Research and Professional Development Grant, 2006-2007
Role: Individual Grant
(*Principal Investigator:* Howard Bondell, Total Amount: $4,000)

Publications (Methodology)

Neely, M. L., Bondell, H. D., and Tzeng, J.-Y. (2015). A penalized likelihood approach for investigating gene-drug interactions in pharmacogenetic studies. *Biometrics* (In Press).

Li, M., Staicu, A. M., and Bondell, H. D. (2015). Incorporating covariates in skewed functional data models. *Biostatistics* (In Press).

Kong, D., Bondell, H. D., and Wu, Y. (2015). Domain selection for the varying coefficient model via local polynomial regression. *Computational Statistics and Data Analysis* **83**, 236-250.

Huque, M. H., Bondell, H. D., and Ryan, L. (2014). On the impact of covariate measurement error on spatial regression modelling. *Environmetrics* **25**, 560-570.

Jiang, L., Bondell, H. D., and Wang, H. J. (2014). Interquantile shrinkage and variable selection in regression models. *Computational Statistics and Data Analysis* **69**, 208-219.

Bondell, H. D. and Stefanski, L. A. (2013). Efficient robust regression via two-stage generalized empirical likelihood. *Journal of the American Statistical Association* **108**, 644-655.

Lin, C.-Y., Zhang, H. H., Bondell, H. D., and Zou, H. (2013). Variable selection for nonparametric quantile regression via smoothing spline analysis of variance. *Stat* **2**, 255-268.

Reich, B. J., Bandyopadhyay, D., and Bondell, H. D. (2013). A nonparametric spatial model for periodontal data with non-random missingness. *Journal of the American Statistical Association* **108**, 820-831.

Jiang, L., Wang, H. J., and Bondell, H. D. (2013). Interquantile shrinkage in regression models. *Journal of Computational and Graphical Statistics* **22**, 970-986.

Sharma, D. B., Bondell, H. D., and Zhang, H. H. (2013). Consistent group identification and variable selection in regression with correlated predictors. *Journal of Computational and Graphical Statistics* **22**, 319-340.

Post, J. B. and Bondell, H. D. (2013). Factor selection and structural identification in the interaction ANOVA model. *Biometrics* **69**, 70-79.

Bondell, H. D. and Reich, B. J. (2012). Consistent high-dimensional Bayesian variable selection via penalized credible regions. *Journal of the American Statistical Association* **107**, 1610-1624.

Reich, B. J., Kalendra, E., Storlie, C. B., Bondell, H. D., and Fuentes, M. (2012). Variable selection for high-dimensional Bayesian density estimation: Application to human exposure simulation. *Journal of the Royal Statistical Society C* **61**, 47-66.

Gunes, F. and Bondell, H. D. (2012). A confidence region approach to tuning for variable selection. *Journal of Computational and Graphical Statistics* **21**, 295-314.

Reich, B. J., Bondell, H. D., and Li, L. (2011). Sufficient dimension reduction via Bayesian mixture modeling. *Biometrics* **67**, 886-895.

Storlie, C. B., Bondell, H. D., Reich, B. J., and Zhang, H. H. (2011). Surface estimation, variable selection, and the nonparametric oracle property. *Statistica Sinica* **21**, 679-705.

Reich, B. J. and Bondell, H. D. (2011). A spatial Dirichlet process mixture model for clustering population genetics data. *Biometrics* **67**, 381-390.

Bondell, H. D., Krishna, A., and Ghosh, S. K. (2010). Joint variable selection of fixed and random effects in linear mixed-effects models. *Biometrics* **66**, 1069-1077.

Bondell, H. D., Reich, B. J., and Wang, H. J. (2010). Non-crossing quantile regression curve estimation. *Biometrika* **97**, 825-838.

Storlie, C. B., Bondell, H. D., and Reich, B. J. (2010). A locally adaptive penalty for estimation of functions with varying roughness. *Journal of Computational and Graphical Statistics* **19**, 569-589

Koehler, M. L., Bondell, H. D., and Tzeng, J.-Y. (2010). Evaluating haplotype effects in case-control studies via penalized-likelihood approaches: prospective or retrospective analysis? *Genetic Epidemiology* **34**, 892-911.

Reich, B. J., Bondell, H. D., and Wang, H. J. (2010). Flexible Bayesian quantile regression for independent and clustered data. *Biostatistics* **11**, 337-352.

Tzeng, J.-Y. and Bondell, H. D. (2010). A comprehensive approach to haplotype-specific analysis by penalized likelihood. *European Journal of Human Genetics* **18**, 95-103.

Bondell, H. D. and Li, L. (2009). Shrinkage inverse regression estimation for model-free variable selection. *Journal of the Royal Statistical Society* B **71**, 287-299.

Bondell, H. D. and Reich, B. J. (2009). Simultaneous factor selection and collapsing levels in ANOVA. *Biometrics* **65**, 169-177.

Krishna, A., Bondell, H. D., and Ghosh, S. K. (2009). Bayesian variable selection using an adaptive powered correlation prior. *Journal of Statistical Planning and Inference* **139**, 2665-2674.

Reich, B. J., Storlie, C. B., and Bondell, H. D. (2009). Variable selection in Bayesian smoothing spline ANOVA models: Application to deterministic computer codes. *Technometrics* **51**, 110-120. (*Technometrics* invited paper at JSM 2009.)

Bondell, H. D. (2008). A characteristic function approach to the biased sampling model, with application to robust logistic regression. *Journal of Statistical Planning and Inference* **138**, 742-755.

Bondell, H. D. and Reich, B. J. (2008). Simultaneous regression shrinkage, variable selection and clustering of predictors with OSCAR. *Biometrics* **64**, 115-123.

Bondell, H. D. (2008). On robust and efficient estimation of the center of symmetry. *Communications in Statistics - Theory and Methods* **37**, 318-327.

Bondell, H. D. (2007). Testing goodness-of-fit in logistic case-control studies. *Biometrika* **94**, 487-495.

Bondell, H. D., Liu, A., and Schisterman, E. F. (2007). Statistical inference based on pooled data: A moment-based estimating equation approach. *Journal of Applied Statistics* **34**, 129-140.

Schisterman, E. F., Perkins, N. J., Liu, A., and Bondell, H. D. (2005). Optimal cut-point and its corresponding Youden index to discriminate individuals using pooled blood samples. *Epidemiology* **16**, 73-81.

Bondell, H. D. (2005). Minimum distance estimation for the logistic regression model. *Biometrika* **92**, 724-731.

Publications (Collaborative)

Stevenson, K. T., Peterson, M. N., Bondell, H. D., Moore, S. E., and Carrier, S. J. (2014). Overcoming skepticism with education: Interacting influences of worldview and climate change knowledge on perceived climate change risk among adolescents. *Climatic Change* **126**, 293-304.

Stevenson, K. T., Peterson, M. N., Carrier, S. J., Strnad, R. L., Bondell, H. D., Kirby-Hathaway, T., and Moore, S. E. (2014). Role of significant life experiences in building environmental knowledge and behavior among middle school students. *Journal of Environmental Education* **45**, 163-177.

Peterson, M. N., Bondell, H. D., Fratanduono, M. B. L., Bigsby, K., and McHale, M. (2013). Prediction indicators for voluntary carbon-offset purchases among trail runners. *Journal of Sport Behavior* **36**, 264-275.

Stevenson, K. T., Peterson, M. N., Bondell, H. D., Mertig, A. G., and Moore, S. E. (2013). Environmental, institutional, and demographic predictors of environmental literacy among middle school children. *PLoS ONE* **8**, e59519.

Rodriguez, S. L., Peterson, M. N., Cubbage, F. W., Sills, E. O., and Bondell, H. D. (2012). Private landowner interest in market-based incentive programs for endangered species habitat conservation. *Wildlife Society Bulletin* **36**, 469-476.

Peterson, M. N., Thurmond, B., McHale, M., Rodriguez, S., Bondell, H. D., and Cook, M. (2012). Predicting native plant landscaping preferences in urban areas. *Sustainable Cities and Society* **5**, 70-76.

Dalrymple, C. J., Peterson, M. N., Cobb, D. T., Sills, E. O., Bondell, H. D., and Dalrymple, D. J. (2012). Estimating public willingness to fund nongame conservation through state tax initiatives. *Wildlife Society Bulletin* **36**, 483-491.

Freire, M., Robertson, I., Bondell, H. D., Brown, J., Hash, J., Pease, A. P., Lascelles, B. D. X. (2011). Radiographic evaluation of feline appendicular degenerative joint disease vs. macroscopic appearance of articular cartilage. *Veterinary Radiology & Ultrasound* **52**, 239-247.

Dalrymple, C. J., Peterson, M. N., Bondell, H. D., Rodriguez, S. L., Fortney, J., Cobb, D. T., and Sills, E. O. (2010). Understanding angler and hunter annual spending in North Carolina. *Proceedings of the Annual Conference of the Southeastern Association of Fish and Wildlife Agencies* **64**, 88-94.

Zamprogno, H., Hansen, B. D., Bondell H. D., Thomson-Sumrell, A., Simpson, W., Robertson, I., Brown, J., Pease, A., Roe, S. C., Hardie, E., Wheeler, S. J., Lascelles, B. D. X. (2010). Item generation and design testing of a questionnaire to assess degenerative joint disease-associated pain in cats. *American Journal of Veterinary Research* **71**, 1417-1424.