Jarad B. Niemi

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Education

Ph.D. Statistical Science, Duke University, 2009
Thesis: Bayesian Analysis and Computational Methods for Dynamic Modeling
Advisor: Mike West

M.S. Biostatistics, University of Minnesota, 2005
Thesis: Identifying and Evaluating Contrarian Strategies for NCAA Tournament Pools
Advisor: Brad Carlin

B.ChE. Chemical Engineering, University of Minnesota, 1999

Academic Positions

Statistics		Iowa State University
	Professor	2023–present
	Associate Professor	2017–2023
	Assistant Professor	2011–2017
Statistics and Actuarial Sciences		Simon Fraser University
	Visiting Scholar	2019-2020
Statistics & Applied Probability		University of California, Santa Barbara
	Assistant Professor	2009–2011

Employment

Consultant	Sustainable Environmental Consultants	2024
	Boehringer Ingelheim Vetmedica, Inc.	2012–2013
	Natural Resources Research Institute	2009–2010
	Denver Health	2008
	Purdue Pharma LP	2007–2008
Research Assistant	Duke University (Mike West)	2006–2009
	University of Minnesota (Brad Carlin)	2004–2005
	University of Minnesota (Grace Peng)	2003–2004
Junior Scientist	University of Minnesota	2001–2004
	Natural Resources Research Institute	2003
Research Engineer	Procter & Gamble	1999-2001

Publications

* Indicates a student advisee or co-advisee.

Refereed Journal Articles

Jessica A. Nelson, Matt Liebman, Jarad Niemi, Richard Cruse, John Tyndall, Chris Witte, Dave James, and Matt Helmers. (2024) The Influence Of Prairie Strips Sown In Midwestern Corn And Soybean Fields On Sediment Discharge Throughout The Year *Journal of Soil and Water Conservation*, **79**(2), 87–98. url

Cole Dutter, Luis A. Damiano*, **Jarad Niemi**, Bradley A. Miller, Lisa A. Schulte, Matt Liebman, Matt Helmers, Rick Cruse, and Marshall D. McDaniel. (2023) Contour prairie strips affect adjacent soil but have only slight effects on crops. *Field Crops Research*, **296**. url

Zachary P. Simpson, Jim Jordahl, Andrea Leptin, Fernando E. Miguez, **Jarad Niemi**, Lisa A. Schulte, Michael L. Thompson, Sebastian H. Villarino, and Marshall D. McDaniel. (2023) No - tillage does not on average reduce soil carbon storage compared to conventional tillage. *Geoderma*, **430**. url

Qinglong Tian, Colin Lewis-Beck*, **Jarad Niemi**, and William Meeker. (2023) Specifying prior distributions in reliability applications. *to appear in Applied Stochastic Models in Business and Industry* url

Matt Nowatzke, Luis Damiano*, Fernando Miguez, Gabe McNunn, **Jarad Niemi**, Lisa Schulte-Moore, Emily Heaton, Andy VanLoocke. (2022) Augmenting agroecosystem models with remote sensing data and machine learning changes overall estimates of nitrate-nitrogen leaching *Environmental Research Letters*, **17**:11, 114010. url

Estee Cramer, Yuxin Huang, Yijin Wang, Evan Ray, Matthew Cornell, Johannes Bracher, Andrea Brennen, Alvaro Castro Rivadeneira, Aaron Gerding, Katie H House, Dasuni Jayawardena, Abdul H Kanji, Ayush Khandelwal, Khoa Le, Vidhi Mody, Vrushti Mody, **Jarad Niemi**, Ariane Stark, Apurv Shah, Nutcha Wattanachit, Martha Zorn, and Nicholas Reich. (2022) The United States COVID-19 Forecast Hub dataset *Scientific Data*, **9**(462). url

Estee Y Cramer, Evan L Ray, Velma K Lopez, Johannes Bracher, Andrea Brennen, Alvaro J Castro Rivadeneira, Aaron Gerding, Tilmann Gneiting, Katie H House, Yuxin Huang, Dasuni Jayawardena, Abdul H Kanji, Ayush Khandelwal, Khoa Le, Anja Muhlemann, **Jarad Niemi**, [256 other authors], Nicholas G Reich. (2022) Evaluation of individual and ensemble probabilistic forecasts of COVID-19 mortality in the US. *Proceedings of the National Academy of Sciences*, **119**(15), e2113561119. url

Matthew Stephenson, Lisa Schulte, Robert Klaver, and **Jarad Niemi**. (2022) Miniature temperature data loggers increase precision and reduce bias when estimating the daily survival rate for bird nests. *Journal of Field Ornithology*, **92**(4), 492–505. url

Mark Tomer, Sarah Porter, David James, Jessica Van Horn, and **Jarad Niemi**. (2021) Comparing riparian buffer design classification data among watersheds representing Iowa landscapes *Agrosystems, Geosciences, and Environment*, **4**(2), e20159. url

Adam Martin-Schwarze*, **Jarad Niemi**, and Philip Dixon. (2021) Joint modeling of distances and times in point-count surveys. *Journal of Agricultural, Biological, and Environmental Statistics*, **26**, 289–305. url

Ashley N. Dean, **Jarad B. Niemi**, John C. Tyndall, Erin W. Hodgson, and Matthew E. ONeal. (2021) Developing a decision-making framework for insect pest management: a case study using soybean aphid (Hemiptera: Aphididae). *Pest Management Science*, **77**(2), 886–894. url

Nate Garton*, **Jarad Niemi**, and Alicia Carriquiry. (2020) Knot selection in sparse Gaussian processes

with a variational objective. *Statistical Analysis and Data Mining*, **13**(4), 324–336. url

M.D. Tomer, J.D. Van Horn, S.A. Porter, D.E. James, and **J. Niemi**. (2020) Comparing agricultural conservation planning framework (ACPF) practice placements for runoff mitigation and controlled drainage among 32 watersheds representing Iowa landscapes. *Journal of Soil and Water Conservation*, **75**(4), 460–471. url

Colin Lewis-Beck*, **Jarad Niemi**, Petrutza Caragea, Brian Hornbuckle, Victoria Walker. (2020) Extracting agronomic information from SMOS vegetation optical depth in the US corn belt using a nonlinear hierarchical model. *Remote Sensing*, **12**(5), 827. url

E. A. Hines, M. R. Romoser, Z. E. Kiefer, A. F. Keating, L. H. Baumgard, **J. Niemi**, N. K. Gabler, J. F. Patience, G. Haberl, N. H. Williams, B. J. Kerr, K. J. Touchette, and J. W. Ross. (2019) The impact of dietary supplementation of arginine during gestation in a commercial swine herd: II. Offspring performance. *Journal of Animal Science*, **97**(9), 3626–3635. url

E. A. Hines, M. R. Romoser, Z. E. Kiefer, A. F. Keating, L. H. Baumgard, **J. Niemi**, N. K. Gabler, J. F. Patience, G. Haberl, N. H. Williams, B. J. Kerr, K. J. Touchette, and J. W. Ross. (2019) The impact of dietary supplementation of arginine during gestation in a commerical herd: I. Gilt reproductive performance. *Journal of Animal Science*, **97**(9), 3617–3625. url

Craig J. McGowan, Matthew Biggerstaff, Michael Johansson, Karyn M. Apfeldorf, Michal Ben-Nun, Logan Brooks, Matteo Convertino, Madhav Erraguntla, David C. Farrow, John Freeze, Saurav Ghosh, Sangwon Hyun, Sasikiran Kandula, Joceline Lega, Yang Liu, Nicholas Michaud*, Haruka Morita, **Jarad Niemi**, Naren Ramakrishnan, Evan L. Ray, Nicholas G. Reich, Pete Riley, Jeffrey Shaman, Ryan Tibshirani, Alessandro Vespignani, Qian Zhang, Carrie Reed & The Influenza Forecasting Working Group. (2019) Collaborative efforts to forecast seasonal influenza in the United States, 2015–2016. *Scientific Reports*, **9**. url

Ignacio Alvarez* and **Jarad Niemi**. (2019) Fully Bayesian analysis of allele-specific RNA-seq data. *Mathematical Biosciences and Engineering*, **16**(6), 7751–7770. url

Nathaniel Garton* and **Jarad Niemi**. (2019) Multivariate temporal modeling of crime with dynamic linear models. *PLOS ONE*, **14**(7), e0218375. url

Will Landau*, **Jarad Niemi**, and Dan Nettleton. (2019) Fully Bayesian analysis of RNA-seq counts for the detection of gene expression heterosis. *Journal of the American Statistical Association*, **114**(526), 610–621. url

Adam Martin-Schwarze*, **Jarad Niemi**, and Philip Dixon. (2017) Assessing the impacts of time to detection distribution assumptions on detection probability estimation. *Journal of Agricultural, Biological, and Environmental Statistics*, **22**(4), 465-480. url

Lisa A. Schulte, **Jarad B. Niemi**, Matthew J. Helmers, Matt Liebman, J. G. Arbuckle, David E. James, Randall K. Kolka, Matthew E. O'Neal, Mark D. Tomer, John C. Tyndall, Heidi Asbjornsen, Pauline Drobney, Jeri Neal, Gary Van Ryswyk, and Chris Witte. (2017) Prairie strips improve biodiversity and the delivery of multiple ecosystem services from corn-soybean croplands *Proceedings of the National Academy of Sciences*, **114**(42), 11247-11252. url

Matthew Simpson*, **Jarad Niemi**, and Vivekananda Roy. (2017) Interweaving Markov chain Monte Carlo strategies for efficient estimation of dynamic linear models. *Journal of Computational and Graphical Statistics*, **26**:1, 152–159. url

Lisa Schulte, Anna MacDonald, **Jarad Niemi**, and Matthew Helmers. (2016) Prairie strips as a mechanism to promote land sharing by birds in industrial agricultural landscapes. *Agriculture, Ecosystems & Environment*, **220**, 55–63. url

Jarad Niemi, Eric Mittman*, Will Landau*, and Dan Nettleton. (2015) Empirical Bayes analysis of RNA-seq data for detection of gene expression heterosis. *Journal of Agricultural, Biological, and Environmental Statistics*, **20**(4), 614–628. url

David M. Brenner, Jack Dekker, **Jarad Niemi**, and Lisa Pfiffner. (2015) Medical oxygen concentrators for releasing seed dormancy. *Crop Science*, **55**(5), 2291–2293. url

Robert B. Gramacy, **Jarad Niemi**, and Robin Weiss. (2014) Massively parallel approximate Gaussian process regression. *SIAM/ASA Journal on Uncertainty Quantification*, **2**, 568–584. url

Daniel Sheinson*, **Jarad Niemi**, and Wendy Meiring. (2014) Comparison of the performance of particle filter algorithms applied to tracking of a disease epidemic. *Journal of Mathematical Biosciences*, **255**, 21–32. url

Jonathan Dess, Jennifer L. Momsen, **Jarad Niemi**, and Lisa Montplaisir. (2014) Student interpretations of phylogenetic trees in an introductory biology course. *CBE - Life Sciences Education*, **13**(4), 666–676. url

Jo Eidsvik, Benjamin A. Shaby, Brian J. Reich, Matthew Wheeler*, and **Jarad Niemi**. (2014) Estimation and prediction in spatial models with block composite likelihoods. *Journal of Computational and Graphical Statistics*, **23**(2), 295–315. url

Bernie J Daigle Jr, Min K Roh, Linda R Petzold, and **Jarad Niemi**. (2012) Accelerated maximum likelihood parameter estimation for stochastic biochemical systems. *BMC Bioinformatics*, **13**(68). url

David Banks, Gauri Datta, Alan Karr, James Lynch, **Jarad Niemi**, and Francisco Vera. (2012) Bayesian CAR models for syndromic surveillance on multiple data streams: theory and practice. *Information Fusion*, **13**(2), 105–116. url

Mike Ludkovski and **Jarad B. Niemi**. (2010) Optimal dynamic policies for influenza management. *Statistical Communications in Infectious Diseases*, **2**(1):5. url

Jarad B. Niemi and Mike West. (2010) Adaptive mixture modelling Metropolis methods for Bayesian analysis of non-linear state-space models. *Journal of Computational and Graphical Statistics*, **19**(2), 260–280. url

Quanli Wang, **Jarad Niemi**, Cheemeng Tan, Lingchong You, and Mike West. (2010) Image segmentation and dynamic lineage analysis in single-cell fluorescent microscopy. *Cytometry: Part A*, **77A**(1), 101–110. url

Jarad Niemi, Brad Carlin, and Jon Alexander. (2008) Contrarian strategies for NCAA tournament pools: a cure for March madness? *Chance*, **21**(1), 39–46. url

Michael J. Simmons, **Jarad B. Niemi**, Don-Felix Ryzek, Cecile Lamour, Joseph W. Goodman, Wojtek Kraszkiewicz, and Ryan Wolff. (2007) Cytotype regulation by telomeric *P* elements in *Drosophila melanogaster*: Interactions with *P* elements from M' strains. *Genetics*, **176**(4), 1957–1966.

Cheemeng Tan, Hao Song, **Jarad Niemi**, and Lingchong You. (2007) A synthetic biology challenge: making

cells compute. *Molecular BioSystems*, **3**, 343–353.

Kevin J. Haley, Jeremy R. Stuart, John D. Raymond, **Jarad B. Niemi**, and Michael J. Simmons. (2005) Impairment of cytotype regulation of *P*-element activity in *Drosophila melanogaster* by mutations in the Su(var)205 gene. *Genetics*, **171**, 583–595.

Jarad B. Niemi, John D. Raymond, Ryan Patrek, and Michael J. Simmons. (2004) Establishment and maintenance of the *P* cytotype associated with telomeric *P* elements in *Drosophila melanogaster*. *Genetics*, **166**, 255–264.

Michael J. Simmons, John D. Raymond, **Jarad B. Niemi**, Jeremy R. Stuart, and Peter J. Merriman. (2004) The *P* cytotype in *Drosophila melanogaster*: A maternally transmitted regulatory state of the germ line associated with telomeric *P* elements. *Genetics*, **166**, 243–254.

Michael J. Simmons, Kevin J. Haley, Craig D. Grimes, John D. Raymond, and **Jarad B. Niemi**. (2002) A hobo transgene that encodes the *P* element transposase in *Drosophila melanogaster*: Autoregulation and cytotype control of transposase activity. *Genetics*, **161**, 195–204.

Book Chapters

Jarad B. Niemi and Gerald J. Niemi. (2015) Linear regression, model averaging, and Bayesian techniques for predicting chemical activities from structure. Ebook chapter on Advances in Mathematical Chemistry and Applications , Editors: Subhash C. Basak, Guillermo Restrepo and Jose Luis Villaveces, Bentham Publishers (url)

Refereed Conference Proceedings

Ignacio Alvarez*, **Jarad Niemi**, and Matt Simpson*. (2014) Bayesian inference for a covariance matrix. *Proceedings for the Conference on Applied Statistics in Agriculture* (url)

Michael Ludkovski and **Jarad Niemi** (2011) Optimal disease outbreak decisions using stochastic simulation. *Proceedings of the 2011 Winter Simulation Conference*, eds. S. Jain, R. R. Creasey, J. Himmelspack, K. P. White, and M. Fu.

Jarad Niemi, Meredith Smith, and David Banks. (2008) Test power for drug abuse surveillance. in *Biosurveillance and Biosecurity, Proceedings of BioSecure 2008, Lecture Notes in Computer Science*, eds. Daniel Zeng, Hsinchun Chen, Henry Rolka, and William B. Lober. pp. 131–142

Refereed Abstracts

Nicholas L. Michaud* and **Jarad Niemi**. (2016) A Bayesian Hierarchical Model for Estimating Influenza Epidemic Severity. ISDS Annual Conference Proceedings 2015. *Online Journal of Public Health Informatics* 8:1. (url)

Nicholas L. Michaud*, Aaron Kite-Powell, and **Jarad Niemi**. (2016) CDCPlot: an Application for Viewing Weekly CDC MMWR Disease Count Data. *Online Journal of Public Health Informatics* 8:1. (url)

Jarad Niemi. (2014) A Tool for Interactive Disease Outbreak Visualization, Detection, and Forecasting. *Online Journal of Public Health Informatics* 6:1. (url)

Jarad Niemi and Michael Ludkovski. (2013) Tau-leaped particle learning. *Online Journal of Public Health Informatics* 5:1. (url)

Jarad Niemi and Michael Ludkovski. (2011) Optimal sequential management decisions for measles outbreaks. *Emerging Health Threats Journal* 4. (url)

Jarad Niemi. (2011) An exploratory analysis of the 2010 measles outbreak in Zimbabwe. *Emerging Health Threats Journal* 4. (url)

Jarad B. Niemi, Michael D. Porter, and Brian J. Reich. (2008) Mixture likelihood ratio scan statistic for disease outbreak detection. *Advances in Disease Surveillance* 5:49. (url)

Book reviews

Jarad B. Niemi. Statistics Done Wrong: The Woefully Complete Guide. *The American Statistician* 70(1), pg 125 url

Jarad B. Niemi. (2010) Dynamic Linear Models with R. *The American Statistician* 64(3), pg 268 url

Patent Applications

Tim W. Dake, **Jarad B. Niemi**, Don L. Hughes, Jeff J. Kester, Don B. Compton, Jon J. Calderas, Rich G. Schafermeyer, and Kevin P. Christmas. (2002) Compositions with high intensity sweetener having enhanced aqueous solubility and methods of their preparation. United States Patent Application 20030026872 https://patentscope.wipo.int/search/en/detail.jsf?docId=WO2002091856

Other manuscripts

Luis Damiano* and **Jarad Niemi**. The RITAS Algorithm: a constructive yield monitor data processing algorithm. https://arxiv.org/abs/2209.11313

Will Landau* and **Jarad Niemi**. A fully Bayesian strategy for high-dimensional hierarchical modeling using massively parallel computing. https://arxiv.org/abs/1606.06659

Jarad Niemi and Andrew Gelman. (2011) Statistical graphics: making information clear – and beautiful. *Significance* 8, 135–137

Jarad B. Niemi and Matthew Wheeler. (2011) Efficient Bayesian inference in stochastic chemical kinetic models using graphical processing units. http://arxiv.org/abs/1101.4242

Jarad B. Niemi. (2010) Evaluating individual player contributions to team offense and defense: a model based approach. *JSM Proceedings, Section on Statistics in Sports*. Vancouver, BC, Canada: American Statistical Association. 4914–4923.

Invited Talks

At other universities

"Building statistical emulators of computer models," St. Olaf College, 14 Nov 2022

"Toward emulators for agricultural computer models," Virginia Tech, 3 Nov 2022

"COVID-19 forecast hub," University of Iowa, 15 Oct 2020

"Sequential knot selection in sparse Gaussian processes," Simon Fraser University, 10 Jan 2020

"Fully Bayesian analysis for hierarchical count regression models." University of California, Irvine, 28 Nov 2017

"Fully Bayesian analysis of RNAseq data for gene expression heterosis detection." University of Massachusetts - Amherst, 24 March 2017

"A computational approach to the sequential control problem." Duke Department of Statistical Science 25^{th} Anniversary Celebration, 20 Oct 2012

"Determining optimal sequential disease outbreak interventions." University of Iowa, Computational Epidemiology Seminar, 20 Jan 2012

"Early outbreak detection using syndromic surveillance networks." University of California, Los Angeles Biostatistics departmental seminar, 19 November 2009

"Computational methods for general state-space models." University of New Mexico Mathematics and Statistics departmental seminar, 19 February 2009

"Computational methods for general state-space models." University of Michigan Statistics departmental seminar, 17 February 2009

"Computational methods for general state-space models." University of Texas, Austin Information, Risk, and Operations Management departmental seminar, 17 February 2009

"Computational methods for general state-space models." Johns Hopkins Biostatistics departmental seminar, 6 February 2009

"Computational methods for general state-space models." University of California, Los Angeles Biostatistics departmental seminar, 28 January 2009

"Computational methods for general state-space models." Iowa State Statistics departmental seminar, 26 January 2009

"Computational approaches for general state-space models." University of California, Santa Barbara Statistics and Applied Probability departmental seminar, 12 January 2009

At conferences

"Gaussian processes with functional length-scales for agricultural models." Statistical Society of Canada Annual Meeting, 11 Jun 2021

"Multivariate temporal modeling of crime with dynamic linear models." Joint Statistical Meetings, 6 Aug 2020,

"OAT knot selection for approximate Gaussian processes." SIAM UQ20, March 2020 (canceled due to COVID-19)

"Parallelized Markov chain Monte Carlo algorithms utilizing GPUs with an application to RNAseq data analysis." 9th International Conference of the ERCIM WG on Computational and Methodological Statistics, University of Seville, Spain, 9-11 December 2016

"Massively parallel approximate Gaussian process regression." Spring Research Conference, Illinois Institute of Technology, 26 May 2016

"Massively parallel approximate Gaussian process regression." Joint Statistical Meetings, 7 Aug 2014

"Particle learning for sequential estimation and prediction of disease outbreaks." 2013 ICSA-ISBS Joint Statistical Conference, 10 Jun 2013

"Particle learning for low counts in disease outbreaks." Midwest Statistics Research Colloquium, 15 Mar 2013

"Rejection sampling on a graphical processing unit." 11th World Meeting of the International Society for Bayesian Analysis, 28 Jun 2012

"Adaptive mixture modeling Metropolis methods for state inference in nonlinear time series." Joint Statistical Meetings, 3 August 2009

"Test power for drug abuse surveillance." BioSecure, 2 December 2008

At agencies, companies, other venues

"Emulation of Agricultural Production Systems sIMulator (APSIM)." Los Alamos National Labs, 23 Sep 2020

"Hierarchical modeling and data fusion." Centers for Disease Control and Prevention Seasonal Influenza Forecasting Workshop, 31 Aug 2016

"Stochastic dynamic models for low count observations." Institute for Disease Modeling Symposium, 19 Apr 2016

"Particle learning for low counts in disease outbreaks." Institute for Disease Modeling, 18 Apr 2016

Contributed Talks at Major Conferences

"Subfield Yield Analysis for Precision Agriculture." Joint Statistical Meetings, 30 July 2019

"Fully Bayesian Analysis of Hierarchical Count Regression Models." Joint Statistical Meetings, 31 July 2018

"Optimal sequential management decisions for measles outbreaks." 10^{th} International Society for Disease Surveillance 10^{th} Annual Conference, 7 Dec 2011

"Evaluating individual player contributions in basketball." Joint Statistical Meetings, 4 Aug 2010

"Optimal sequential management decisions for influenza outbreaks." 9th International Society for Disease Surveillance 9th Annual Conference, 2 Dec 2010

"Mixture likelihood ratio scan statistic for disease outbreak detection." 7th Annual Meeting of the International Society for Disease Surveillance, 3 December 2008

"Bayesian modeling and inference in single cell dynamic networks." 39th Symposium on the Interface: Computing Science and Statistics, 26 May 2007

"Identifying and evaluating contrarian strategies for NCAA tournament pools." 2006 Joint Statistical Meetings, 8 August

Other Talks

"Gaussian Process Emulators with Functional Inputs for Water Erosion Prediction Project" NCCC170, 15 Jun 2023

"Advancing Scientific Practice through Agricultural Statistics," Iowa State University, 26 Sep 2022

"Computer Model Emulation in Agriculture." NCCC170, 16 Jun 2022

"COVID-19 Forecast Hub." ISU Undergraduate STAT Club, 22 Oct 2020

"Bayesian analysis in R." Rgronomists/LunchinatoRs, 1 Feb 2019

"Emulation of WEPP and DEP." SAMSI MUMS Prediction Uncertainty and Extrapolation working group, 28 Nov 2018

"Using information underlying missing data for improve estimation of NFL field goal kicker accuracy." Midwest Sports Analytics Meetings, 19 Nov 2016

"Bayesian analysis for heterosis detection in RNAseq data." Department of Statistics, Colorado State University, 11 Dec 2015

"Bayesian analysis for heterosis detection in RNAseq data." Department of Applied Mathematics, University of Colorado-Boulder, 7 Dec 2015

"Empirical Bayes analysis for detection of gene heterosis in RNAseq data." Conference on Applied Statistics in Agriculture, Manhattan, KS, 27 Apr 2015

"Empirical Bayes identification of gene heterosis using RNAseq counts." Animal Breeding and Genetics, Iowa State University, 28 Jan 2015

"Particle learning for low counts in disease outbreaks." Department of Statistics, Iowa State University, 16 September 2013

"Statistical methods for identifying gene expression heterosis." Conference on Applied Statistics in Agriculture, Manhattan, KS, 30 Apr 2013 (joint with Dan Nettleton)

"A sequential Monte Carlo primer." Iowa State University, Department of Statistics, Computational Statistics working group, 12 Oct 2011

"Statistical computing on graphical processing units." Iowa State University, Department of Statistics, Computational Statistics working group, 28 Sep 2011

"Time management." UCSB IGERT Career Development Seminar Series, 12 Apr 2011

"Optimal dynamic policies for influenza management." Iowa State University departmental seminar, 24 February 2011

"Optimal sequential management decisions for influenza outbreaks." University of California, Santa Barbara Statistics and Applied Probability departmental seminar, 12 January 2011 (joint with Mike Ludkovski)

"A brief introduction to R." University of California, Santa Barbara Quantitative Methods in Social Sciences seminar, 8 Apr 2010

"A sequential Monte Carlo primer." University of California, Santa Barbara Statistics and Applied Probability departmental seminar, 21 October 2009

"Assessing the effectiveness of a national drug intervention policy." Graduate Student Seminar Series, 17 November 2008

"Discrete-time models for intracellular processes in systems biology." Graduate Student Research Day, Duke University, 02 Apr 2008

"Bayesian analysis in systems biology: advances and impact in single-cell dynamical networks." Graduate Student Seminar Series, 25 February 2008

"Stochastic modelling and estimation in dynamic cellular networks." 39^{th} Symposium on the Interface: Computing Science and Statistics, 24 May 2007 (invited, given on behalf of Mike West)

Posters

Jarad Niemi and Will Landau. Fully Bayesian analysis of hierarchical count regression models applied to RNAseq. 2018 ISBA World Meeting, 26 Jun 2018

Jarad Niemi and Will Landau. `fbseq`: An R package for fully Bayesian analysis of RNAseq data.

Nicholas L. Michaud*, Aaron Kite-Powell, and **Jarad Niemi**. CDCPlot: an Application for Viewing Weekly CDC MMWR Disease Count Data. 2015 International Society for Disease Surveillance Conference, 10 Dec 2015

Nicholas L. Michaud* and **Jarad Niemi**. A Bayesian Hierarchical Model for Estimating Influenza Epidemic Severity. Epidemics5, 3 Dec 2015

Will Landau*, and **Jarad Niemi**. A Hierarchical Modeling Strategy for Identifying Gene Expression Heterosis using Parallel Computing with Graphics Processing Units (GPUs). Conference on Applied Statistics in Agriculture, Kansas State University, Apr 2015

Eric Mittman*, **Jarad Niemi**, and Dan Nettleton. Hierarchical Bayesian modeling of RNA-seq data with Stan. Conference on Applied Statistics in Agriculture, Kansas State University, Apr 2015

Jarad Niemi and Michael Ludkovski. Poisson-binomial state-space model for disease outbreaks with low counts. International Society for Bayesian Analysis World Meeting, 16 July 2014

Ignacio Alvarez* and **Jarad Niemi**. Bayesian Inference for covariance matrix. Conference on Applied Statistics in Agriculture, Manhattan, KS, 29 Apr 2014

Jarad Niemi. "A Tool for Interactive Disease Outbreak Visualization, Detection, and Forecasting" 2013 International Society for Disease Surveillance Conference, 7 Dec 2013

MacDonald, A.L., L.A. Schulte Moore, M.J. Helmers, and **J.B. Niemi**. Bird response to native habitat strips integrated into agricultural fields. International Conference on Agricultural Biodiversity and Sustainability, Hokkaido University, Japan, 29 Aug 2012

A.L. MacDonald, L.A. Schulte, M.J. Helmers, and **J.B. Niemi**. 2012. Testing a new conservation practice for agricultural landscapes: Bird response to prairie strips in row-cropped landscapes. 97th Annual Meeting of the Ecological Society of America, Portland, Oregon, 7 Aug 2012

Jarad Niemi. "An exploratory analysis of the 2010 measles outbreak in Zimbabwe" 2011 International Society for Disease Surveillance Conference, 7 Dec 2011

Jarad Niemi and Matthew Wheeler. "Parameter inference in stochastic chemical kinetic models on GPUs." MCMSki3: 4^{th} International IMS/ISBA Joint Meeting, 6 Jan 2011

Jarad Niemi and Mike West. "Nonlinear dynamic models for single-cell time-lapse microscopy." Duke Center for Systems Biology Retreat, 18 May 2009

Jarad Niemi "Adaptive mixture filtering: an alternative to particle filtering?" SAMSI Sequential Monte Carlo Kickoff Workshop, 8 September 2008

Jarad Niemi and Mike West. "Bayesian parameter estimation for systems biological models of dynamic cellular networks." SAMSI Biosystems Modeling Workshop, 5 March 2007

Jarad Niemi and Mike West. "Bayesian parameter estimation for systems biological models of dynamic cellular networks." 1^{st} Annual Duke Systems Biology Symposium, 14 September 2006

Jarad Niemi and Mike West. "Bayesian parameter estimation for systems biological models of dynamic cellular networks." 8thValencia International Meeting on Bayesian Statistics, 5 Jun 2006

News interviews (hyperlinked)

CNBC, CBS Moneywatch, MSN MoneyCentral, Slate (2009, 2011, 2012, 2013), The Duke Chronicle

Courses taught

Regular courses

At Iowa State University:		
Spring 2023	STAT 486/586	Introduction to Statistical Computing
Fall 2022	STAT 330	Probability and Statistics for Computer Science
Spring 2022	HCI 522	Scientific Methods in Human Computer Interaction
Fall 2021	STAT 587-1	Statistical Methods For Research Workers
	STAT 615	Advanced Bayesian Methods
Spring 2021	STAT 330-2	Probability and Statistics for Computer Science
	STAT 587-3	Statistical Methods For Research Workers
Fall 2020	STAT 587-2	Statistical Methods For Research Workers
Spring 2019	STAT 544	Bayesian Statistics
	STAT 587C	Statistical Methods for Research Workers
Fall 2018	STAT 226	Introduction to Business Statistics
Spring 2018	STAT 544	Bayesian Statistics
	STAT 401C	Statistical Methods for Research Workers
Fall 2017	STAT 615	Advanced Bayesian Methods
Spring 2017	STAT 401D	Statistical Methods for Research Workers
	STAT 544	Bayesian Statistics
Fall 2016	STAT 330	Probability and Statistics for Computer Science
Spring 2016	STAT 544	Bayesian Statistics
Fall 2015	STAT 615	Advanced Bayesian Methods
Spring 2015	STAT 544	Bayesian Statistics
Fall 2014	STAT 401A	Statistical Methods for Research Workers
	STAT 330	Probability and Statistics for Computer Science
Spring 2014	STAT 544	Bayesian Statistics
Fall 2013	STAT 401A	Statistical Methods for Research Workers
	STAT 615	Advanced Bayesian Methods
Spring 2013	STAT 544	Bayesian Statistics
Fall 2012	STAT 401A	Statistical Methods for Research Workers
	HON 321E	Paradox
Spring 2012	STAT 401A	Statistical Methods for Research Workers
Fall 2011	STAT 615	Advanced Bayesian Methods

At University of California - Santa Barbara:		
Spring 2011	PSTAT 120C	Probability and Statistics
	PSTAT 230	Seminars and Projects in Statistical Consulting
Winter 2011	PSTAT 220B	Advanced Statistical Methods (GLMs)
Fall 2010	PSTAT 120B	Probability and Statistics
Spring 2010	PSTAT 120B	Probability and Statistics (estimation and testing)
	PSTAT 230	Seminar and Projects in Statistical Consulting
Winter 2010	PSTAT 262	Applied Bayesian Time Series

Short courses

Jan 2022	Data Management Workshop	ISU	1-day
Dec 2016	Introduction to R for Biosurveillance	ISDS	1-day
Dec 2015	Introduction to R for Biosurveillance	ISDS	1-day
Dec 2014	Introduction to R for Biosurveillance	ISDS	1-day
Apr 2010	Sequential Monte Carlo methods	ASA-Albuquerque	$\frac{1}{2}$-day
Dec 2009	Introduction to statistical analysis in R	NRRI	2-day

Grants

USDA NIFA (#2020-68012-31824) Consortium for Cultivating Human and Naturally reGenerative Enterprises (C-CHANGE), Role: Co-PI. 1 Sep 2020 to 31 Aug 2025. [$10,000,000; $62,614 to Niemi]

Foundation for Food and Agriculture Research, Prairie Strips for Healthy Soils and Thriving Farms, Role: Co-PI 1 October 2018 to 30 September 2021 [$746,204.44; $69,747 to Niemi]

Iowa State University Presidential Interdisciplinary Research Initiative (ISU-PIRI), Initiative for Cultivating Human And Naturally reGenerative Enterprises (I-CHANGE), Role: Co-PI. 1 June 2018 to 31 May 2021 [$741,480; $6,175 to Niemi]

D. Nettleton, P. Liu, **J. Niemi**, P. Schnable. Hierarchical Modeling and Parallelized Bayesian Inference for the Analysis of RNAseq Data, National Institutes of Health, September 1, 2013 to May 31, 2017 [$1,088,156; $272,039 to Niemi]

Honors, and Awards

2022 Iowa State University College of Liberal Arts & Sciences Outstanding Achievement in Extension or Professional Practice

2022 Iowa State University Interdisciplinary Team Research Award (C-CHANGE)

2021 American Society of Agronomy Presidential Award (NCCC170)

2020 Conservation Innovation Award, Soil and Water Conservation Society (STRIPS Team)

2018 Iowa State University College of Liberal Arts & Sciences Institutional Service Award

2018 Iowa State University College of Agriculture and Life Sciences Team Award (STRIPS Team)

Iowa State University Health Research Initiative on Infectious Diseases (PI Michael Cho, I was one of many investigators) [$150,000] (2012)

World Meeting of the International Society for Bayesian Analysis Early Career Researchers Travel Grant [$500] (2012)

Iowa State University College of Liberal Arts and Sciences grant for GPU cluster and RA support [$88,000] (2011)

University of California Regents Junior Faculty Fellowship [$7,500] (2011)

MCMSki3 conference travel support [$650] (2011)

NVIDIA Academic Partnership Program award [2× NVIDIA C2050 GPUs] (2010)

Section on Bayesian Statistical Science Student Paper Competition winner [$1,000] (2009)

International Society for Disease Surveillance Technical Contest 2nd place (2008)

NSF National Research Service Award Fellowship (2003–2004)

Memberships

American Association for the Advancement of Science

American Statistical Association

International Society for Bayesian Analysis

International Society for Disease Surveillance

Service

Profession

NSF Panel (2018, 2024)

Associate Editor for *Journal of Agricultural, Biological, and Environmental Statistics* (2016–current)

Conference organization

- Conference on Applied Statistics in Agriculture and Natural Resources, Program Committee Member (2024)
- International Society for Disease Surveillance Analytical Methods track chair (2012,2013)
- International Society for Disease Surveillance Session chair (2010)
- Joint Statistical Meetings, Section on Statistical Computing session chair (2009)

Other statistical community service (hyperlinked if appropriate)

- Iowa State Science & Technology Fair Judge (2022–2023)
- First Lego League Coach (2022–2024)
- NCCC170 Website Development Lead (2022–present)
- Cross-validated user 4,561 rep
- International Society for Bayesian Analysis - Web Editor (2013–2015)
- Professional website (`http://jarad.me/`) (2009–present)
- News Editor for Significance Magazine (2010–2012)
- Professional twitter account (`@jaradniemi`)
- Professional YouTube channel (`https://www.youtube.com/jaradniemi`) (2011–present)

University service

- ISU Provost Working Group on Faculty Salary Equity Study (2022–present)
- ISU LAS CASTLE (2020–present, chair 2023–present)
- C-CHANGE Smart Technologies Lead (2020–present)
- ISU STRIPS Data lead (2018–present)
- ISU Faculty Compensation Committee (2016–2022)
- ISU Transportation Advisory Council (2015–2018)
- ISU Faculty Senate departmental representative (2012–2018)
- UCSB Faculty Legislature, member (2010–2011)
- Center for Research in Financial Mathematics and Statistics, UCSB, member (2010–2011)
- Quantitative Methods in the Social Sciences, UCSB, core faculty (2009–2011)

Departmental service

- ISU Department of Statistics

* Director of Graduate Recruiting and Admissions (2022–current)
* Graduate Student Services Specialist Search Committee, member (2022, 2023)
* Faculty Search Committee, member (2018–2019, 2021–2022)
* Graduate Curriculum and Exams Review, co-chair (2022–present)
* Graduate Curriculum Review Committee, chair (2021–2022)
* Graduate Exams Review Committee, member (2021–current)
* Diversity, Equity, and Inclusion Committee, member (2020–2021)
* Website Committee, chair (2020–current)
* Graduate Recruiting and Admissions Committee, member (2020–current)
* Computation Advisory Committee, member (2011–2022), chair (2017–2019)
* Chair Search Advisory committee (2018–2019)
* Qualifying Exam Committee, member (2016–2019)
* Snedecor Sustainability Committee, co-chair (2015–2017)
* Preparing Future Faculty mentor:
    - Will Landau (2013–2014)
    - Natalia da Silva (2015–2016
* STAT-ers advisor (2011–2017)
* Statistics/BCB search committee (2014–2015)
* Director of Statistical Consulting search committee (2014–2015)
* Department Chair search committee (2012–2014)
* Computational Statistics working group, chair (2011–2014)
* Social committee (2011–2015)

Student Committees and Advisees

Table 1: Graduate students advised

Student	School	Department	Degree	Completed	Chair	Co-chair
Fredrick Osei	ISU	STAT	MS	In progress	Co-chair	Danica Ommen
Spencer Wadsworth	ISU	STAT	MS	2022	Chair	
Luis Damiano	ISU	STAT	MS	2020	Chair	
Xiyuan Sun	ISU	STAT	MS	2019	Chair	
Gulzina Kuttubekova	ISU	STAT	MS	2019	Chair	
Nate Garton	ISU	STAT	MS	2018	Chair	
Katie Will	ISU	STAT	MS	2017	Chair	
Eric Mittman	ISU	STAT	MS	2015	Chair	
Ignacio Alvarez-Castro	ISU	STAT	MS	2014	Chair	
Adam Martin-Schwarze	ISU	STAT	MS	2014	Chair	
Casey Oliver	ISU	STAT	MS	2012	Co-chair	Dan Nettleton
Aditya Ranade	ISU	STAT	PhD	In progress	Chair	
Spencer Wadsworth	ISU	STAT	PhD	In progress	Chair	
Alexander Phillips	ISU	STAT	PhD	In progress	Chair	
Luis Damiano	ISU	STAT	PhD	2023	Chair	
Nate Garton	ISU	STAT	PhD	2020	Co-chair	Alicia Carriquiry
Nehemias Ulloa	ISU	STAT	PhD	2019	Chair	
Colin Lewis-Beck	ISU	STAT	PhD	2018	Co-chair	Petrutza Caragea
Ignacio Alvarez-Castro	ISU	STAT	PhD	2017	Chair	
Eric Mittman	ISU	STAT	PhD	2017	Chair	
Adam Martin-Schwarze	ISU	STAT	PhD	2017	Co-chair	Philip Dixon
Will Landau	ISU	STAT	PhD	2016	Chair	
Nicholas Michaud	ISU	STAT	PhD	2016	Chair	
Matthew Simpson	ISU	STAT&ECON	PhD	2015	Co-chair	Gray Calhoun
Danny Sheinson	UCSB	PSTAT	MS	2011	Co-chair	Wendy Meiring
Danny Sheinson	UCSB	PSTAT	PhD	2014	Co-chair	Wendy Meiring

Table 2: Graduate student committees

Chair/Co-chair	STAT	Degree	Completed	In progress
Yes	Yes	MS	11	1
Yes	Yes	PhD	11	3
No	No	MS	12	1
No	No	PhD	21	4
No	Yes	MS	14	0
No	Yes	PhD	24	2

Table 3: Undergraduate Research Projects Supervised

Student	Year	Topic
Aridania Gerardo	2021	Bayesian Hierarchical Model for Reward Probabil...
Roger Castillo-Ramos	2021	Shiny App for Visualization of Fertilizer Effec...
Benedict Neo	2022	Development of WEPPR: an R interface to the WEP...
Benedict Neo	2023	Python Implementation of RITAS Yield-processing...
Ben Monroe	2023	Wrestling Data Analysis
Feifan (Fiona) Cao	2023	Empirical Study of Card Shuffling
Srilikitheswari Korrapati	2024	DEP Exploratory Analysis