

Curriculum Vitae

John Hughes

Academic Rank

Associate Professor of Biostatistics

Degrees Awarded

PhD, Statistics, The Pennsylvania State University, 2011

MS, Statistics, The Pennsylvania State University, 2009

MS, Applied Computer Science, Frostburg State University, 2002

BS, Mathematics and Computer Science, Frostburg State University, 1995

Academic Employment

University of Colorado, Denver

Associate Professor of Biostatistics, 2016–present

University of Minnesota, Twin Cities

Assistant Professor of Biostatistics, 2011–2016

The Pennsylvania State University, University Park

Research Assistant, John Fricks, 2008–2011

Teaching Assistant, Manfred Denker, Math/Stat 416 Stochastic Modeling, fall 2008

Frostburg State University, Frostburg, MD

Lecturer of Computer Science, 1995–2007

Consulting

Minnesota Center for Chemical and Mental Health, 2015–2016

TRE Los Angeles, 2015–2016

Courage Kenny Research Center, 2011–2015

Memberships in Professional Organizations

American Association of University Professors
International Association for Statistical Computing
International Environmetrics Society
International Society for Bayesian Analysis
American Statistical Association
Institute of Mathematical Statistics
International Biometric Society (WNAAR)
Society for Industrial and Applied Mathematics
Bernoulli Society

Honors and Awards

Student Travel Award; MCMSki V; Lenzerheide, Switzerland; January 4–7, 2016
NSF Early Career Researchers Travel Grant; ISBA 2012 World Meeting; Kyoto, Japan; June 25–29, 2012
Student Travel Award; MCMSki III; Park City, UT, USA; January 5–7, 2011
University Graduate Fellowship, The Pennsylvania State University, 2007–2008

Editorships/Journal Reviewer Experience

Editorial Board, *Medeniyet Medical Journal*
Associate Editor, 2014–2018, *Journal of Agricultural, Biological, and Environmental Statistics*
Referee, *Spatial and Spatiotemporal Epidemiology*
Referee, *Statistical Methods in Medical Research*
Referee, *Environmental and Ecological Statistics*
Referee, *Biostatistics*
Referee, *Statistics in Medicine*
Referee, *Statistica Sinica*
Referee, *Biometrics*
Referee, University of Wisconsin ICTR Novel Methods Translational Research Pilot Program
Referee, *Journal of Evaluation in Clinical Practice*
Referee, *Journal of Agricultural, Biological, and Environmental Statistics*
Referee, *Journal of the Royal Statistical Society, Series C*
Referee, *Clinical Trials*
Referee, *Statistical Methodology*

Referee, *Environmetrics*

Referee, *Journal of the American Statistical Association*

Referee, *The Annals of Applied Statistics*

Referee, *The American Statistician*

Referee, *Bayesian Analysis*

Referee, *Frontiers in Applied Mathematics and Statistics*

Referee, *Journal of Computational and Graphical Statistics*

Research and Training Grants

Active Grants

1. **Title:** Routes to Sustainability for Natural Gas Development and Water and Air Resources in the Rock Mountain Region
 PI: John Adgate and Joseph Ryan
 Source: NSF
 Purpose: The goals of this study are to assess the sustainability of natural gas development and its impacts on environmental media and health in the Rocky Mountain Region.
 Period: 2012–2018
 Role: Co-Investigator
 Award: 10% salary support

2. **Title:** Genetic Epidemiology of COPD (COPDGene)
 PI: James Crapo and Edwin Silverman
 Source: NIH/NHLBI
 Purpose: The goals of this study are to discover what heritable or genetic factors contribute to the development of COPD in some people and to use this information to develop new therapeutic approaches to control this disease.
 Period: 2016–present
 Role: Co-Investigator
 Award: 25% salary support

3. **Title:** Colorado Clinical and Translational Sciences Institute
 PI: Ronald Sokol
 Source: NIH/NCATS UL1 TR001082
 Purpose: The major goals of this project are to enhance clinical and translational research and science, training of clinical and translational scientists, and collaboration with the communities of Colorado and the surrounding region.
 Period: 2016–present
 Role: Co-Investigator
 Award: 20% salary support

Completed Grants

1. **Title:** Develop a Center for Excellence for Mental Health Workforce
 PI: Piper Meyer–Kalos
 Source: MN Department of Human Services

- Purpose:** The major goal of this project is to develop an individual practitioner certification for co-occurring mental health and substance use disorders, provide training and consultation in evidence-based practices, and pilot an intervention for co-occurring disorders.
- Period:** 2014–2016
- Role:** Co-Investigator
- Award:** 12.5% salary support
2. **Title:** Mental Health Quality Improvement Project for Assertive
PI: Piper Meyer–Kalos
Source: MN Department of Human Services
Purpose: The major goals of this project are to pilot an intervention for integrated mental health and medical disorders on assertive community treatment teams.
Period: 2014–2015
Role: Co-Investigator
Award: 12.5% salary support
 3. **Title:** Copula Models for Spatial Epidemiology of Cancer
Source: National Cancer Institute (R03)
Purpose: The aim of the proposed research is to develop a new class of statistical models that could potentially provide a more accurate description of cancer risk. New, user-friendly software will enable a diverse community of practitioners to apply the new models to spatially aggregated cancer data.
Period: 2014–2016
Role: **Principal Investigator**
Award: 20% salary support
 4. **Title:** University of Minnesota Clinical and Translational Science Institute (UMN CTSI)
PI: Bruce Blazar
Source: NIH/NCATS UL1 TR000114 & KL2 TR000113
Purpose: The two major CTSI goals are to (1) create an academic home and a flexible infrastructure to coordinate and integrate CTS research and foster transparent communications and interactions between UMN and the community for the purpose of maximizing health outcome impact statewide, and (2) train and reward interdisciplinary CTS teams at UMN and in the community.
Period: March 2013–February 2016
Role: Co-Investigator
Award: 20% salary support
 5. **Title:** New Methods for Spatial Statistics and Processive Motor Proteins
Source: Simons Foundation
Purpose: This award supports mathematical collaboration by funding travel and visitors.
Period: September 2012–December 2015
Role: **Principal Investigator and sole author of proposal**
Award: \$35,000
 6. **Title:** RF Safety for Brain MRI at Ultra-High Fields
PI: Thomas Vaughn
Source: NIH R01
Purpose: The overall objective of this proposal is to investigate high frequency RF heating in order to improve RF safety for high field MRI.
Period: April 2012–January 2015
Role: Co-Investigator
Award: 9% salary support

7. **Title:** Open-Source Software for New Methods in Spatial Statistics
Source: Grant-in-Aid of Research, Artistry, and Scholarship
Purpose: The aim of this project is to design, develop, document (including a journal article), and freely distribute a new software package called `ngspatial` 1.0, which will support the use of several new spatial models.
Period: January 2012–June 2013
Role: **Principal Investigator and sole author of proposal**
Award: \$26,072

Pending Grants

1. **Title:** Novel Approaches to Phenotyping in Sarcoidosis
PI: Nichole Carlson, Tasha Fingerlin, and Lisa Maier
Source: NIH R01
Purpose: The goals of this project are to 1) develop new measures of lung damage in the disease sarcoidosis using CT scans, and 2) to integrate these new measures with clinical data and genomic information to identify and describe the ways sarcoidosis disease appears in the lung. This project will identify new ways to group patients when following them to understand why disease gets worse in some and better in others and when testing new treatments for disease.
Period: 2018–2022
Role: Co-Investigator
Award: 15% salary support
2. **Title:** Defining Personal Environmental Boundaries in Cancer Control
PI: Myles Cockburn
Source: NCI R21
Purpose: We will develop and pilot test a simple and scalable approach to incorporating place into the patient medical record: a tablet-based mapping system that allows patients to define their local environment by drawing a boundary on a map depicting where they spend most of their time, known as a Personal Environment Boundary, or PEB. We will record PEBs for at least 500 cancer patients in both university clinic (in our Comprehensive Cancer Center) and community clinic (through a Practice-Based Research Network) settings, link them to medical records, and use them to enhance linkage with available data on place-based factors associated with outcomes for cancer patients.
Period: 2018–2020
Role: Co-Investigator
Award: 10% salary support
3. **Title:** A Multi-State Examination of Oil and Gas Development and Childhood Leukemia
PI: Lisa McKenzie
Source: NIEHS R01
Purpose: In this multi-state, population-based case-control study of childhood ALL among children born in Colorado, Ohio, Pennsylvania, and Texas, an innovative UO&G activity model and U.S. Census data will be used to evaluate two childhood ALL risk factors linked to UO&G: leukemogenic air pollutants and population mixing.
Period: 2018–2023
Role: Co-Investigator
Award: 8–20% salary support
4. **Title:** Ambient Aromatic Hydrocarbon Exposure in Communities: Characterization of Biomarkers of Exposure and Effect
PI: Lisa McKenzie
Source: NIEHS R21

- Purpose:** In this pilot study, biomarkers of BTEX exposure and indicators of short-term nucleic acid damage and lipid peroxidation will be longitudinally measured in 15 people living near a large O&G well pad to evaluate associations between biomarkers of BTEX exposure and subclinical health effects.
- Period:** 2018–2020
- Role:** Co-Investigator
- Award:** 5–10% salary support
5. **Title:** Quantitative MRI Assessment of the Heterogeneity of Knee OA: A Longitudinal Full-Joint Multi-Parametric Approach
- PI:** Julio Carballido–Gamio
- Source:** NIH/NIAMS
- Purpose:** To identify structural and biochemical MRI features associated with different phenotypes of knee osteoarthritis.
- Period:** 2017–2022
- Role:** Co-Investigator
- Award:** 10% salary support
6. **Title:** Use of a Medication Risk Mitigation Tool by Clinical Pharmacists to Manage At-Risk Patients and Reduce Adverse Drug Events
- PI:** Heather Anderson
- Source:** AHRQ
- Purpose:** Examine the impact of a medication risk mitigation tool on clinical pharmacists medication recommendations and patients adverse drug event risk in primary care settings.
- Period:** 2017–2020
- Role:** Biostatistician
- Award:** 5–30% salary support
7. **Title:** Exposure and Health Effects Near Petroleum Development: A Longitudinal Study
- PI:** John Adgate
- Source:** NIEHS
- Purpose:** This panel study will explore the association between exposure to air and noise pollution and subclinical markers of inflammation and cardiovascular health for subjects residing in the midst of oil and gas development near Greeley, CO.
- Period:** 2017–2022
- Role:** Co-Investigator
- Award:** 10–20% salary support
8. **Title:** The Influence of *In Utero* Cannabis Exposure on Offspring Brain Morphology and Network Connectivity in the Prefrontal Regions During Infancy
- PI:** Tessa Crume
- Source:** NIDA
- Purpose:** The aim of this project is to determine whether *in utero* exposure to maternal chronic cannabis use during pregnancy impacts offspring brain morphology, white matter microstructure, and the typology of functional neural connectivity within attention networks of the brain in the first year of life.
- Period:** 2017–2019
- Role:** Co-Investigator
- Award:** 5% salary support

Publications

Books or Monographs

1. **J. Hughes**. *A Concise Introduction to Object-Oriented Data Structures and Algorithm Analysis*. Pearson Custom Publishing, 2006.

Book Chapters

1. M. Bezener, L. E. Eberly, **J. Hughes**, G. Jones, and D. R. Musgrove. Bayesian spatiotemporal modeling for detecting neuronal activation via functional magnetic resonance imaging. In W. K. Härdle, H. H.-S. Lu, and X. Shen, editors, *Handbook of Big Data Analytics*, Springer Handbooks of Computational Statistics. Springer, 2017.

Peer-Reviewed Journal Articles

§ = student paper

† = co-first author

1. P. Morgan, M. J. Nissi, **J. Hughes**, S. Mortazavi, and J. Ellermann. T2* mapping provides information that is statistically comparable to an arthroscopic evaluation of acetabular cartilage. *Cartilage*, in press.
- † 2. E. Kürüm, **J. Hughes**, and R. Li. Time-varying copula models for longitudinal data. *Statistics and Its Interface*, in press.
3. S. Elwir, A. Shaukat, M. Shaw, **J. Hughes**, and J. Colton. Variability in, and factors associated with, sizing of polyps by endoscopists at a large community practice. *Endoscopy International Open*, in press.
- § 4. L. Henn, **J. Hughes**, E. Iisakka, J. Ellermann, S. Mortazavi, C. Ziegler, M. J. Nissi, and P. Morgan. Disease severity classification using quantitative magnetic resonance imaging data of cartilage in femoroacetabular impingement. *Statistics in Medicine*, 36:1491–1505, 2017.
5. A. E. Bantle, L. S. Chow, L. M. Steffen, Q. Wang, **J. Hughes**, N. H. Durant, K. H. Ingram, J. P. Reis, and P. J. Schreiner. The association of Mediterranean diet and cardiorespiratory fitness with development of prediabetes and diabetes: The coronary artery risk development in young adults (CARDIA) study. *BMJ Open Diabetes Research and Care*, in press.
- § 6. D. Musgrove, **J. Hughes**, and L. E. Eberly. Hierarchical copula regression models for areal data. *Spatial Statistics*, 17:38–49, 2016.
7. L. S. Chow, A. O. Odegaard, T. A. Bosch, A. E. Bantle, Q. Wang, **J. Hughes**, M. Carnethon, K. H. Ingram, N. Durant, C. E. Lewis, J. Ryder, C. M. Shay, A. S. Kelly, P. J. Schreiner. Twenty year fitness trends in young adults and incidence of prediabetes and diabetes: the CARDIA study. *Diabetologia*, 1–7, 2016.
8. D. J. Bond, A. C. Andreazza, **J. Hughes**, T. Dhanoa, I. J. Torres, J.-M. Kozicky, L. T. Young, A. Morgan, R. W. Lam, and L. N. Yatham. A longitudinal study of the relationships between mood symptoms, body mass index, and serum adipokines in bipolar disorder. *Journal of Clinical Psychiatry*, in press.
9. D. Bond, A. Andreazza, **J. Hughes**, J.-M. Kozicky, D. Taj, I. Torres, L. T. Young, R. Lam, and L. Yatham. Association of peripheral inflammation with body mass index and depressive relapse in bipolar disorder. *Psychoneuroendocrinology*, 65:76–83, 2016.
- § 10. D. Musgrove, **J. Hughes**, and L. E. Eberly. Fast, fully Bayesian spatiotemporal inference for fMRI data. *Biostatistics*, 17(2):291–303, 2016.

11. E. Kürüm, **J. Hughes**, and R. Li. A semivarying joint model for longitudinal binary and continuous outcomes. *Canadian Journal of Statistics*, 44(1):44–57, 2016.
12. P.-Y. Iroh Tam, J. S. Menk, **J. Hughes**, and S. L. Kulasingam. An ecological analysis of pertussis disease in Minnesota, 2009–2013. *Epidemiology and Infection*, 144(4):847–855, 2016.
- § 13. E. J. Nelson, **J. Hughes**, J. M. Oakes, J. S. Pankow, and S. L. Kulasingam. Geospatial patterns of human papillomavirus vaccine uptake in Minnesota. *BMJ Open*, 5(8), 2015.
14. **J. Hughes**. copCAR: A flexible regression model for areal data. *Journal of Computational and Graphical Statistics*, 24(3):733–755, 2015.
- † 15. N. Kohli, **J. Hughes**, C. Wang, C. Zopluoglu, Y. Chang, and M. Davison. Fitting a linear–linear piecewise growth mixture model with unknown knots: A comparison of two common approaches to inference. *Psychological Methods*, 20(2):259–275, 2015.
16. M. Nissi, S. Mortazavi, **J. Hughes**, P. Morgan, and J. Ellermann. T2* relaxation time of acetabular and femoral cartilage with and without intra-articular gadopentetate dimeglumine in patients with femoroacetabular impingement. *American Journal of Roentgenology*, 204(6):W695–W700, 2015.
- § 17. E. J. Nelson, **J. Hughes**, J. M. Oakes, J. S. Pankow, and S. L. Kulasingam. Estimation of geographic variation in human papillomavirus vaccine uptake in men and women: An online survey using Facebook recruitment. *Journal of Medical Internet Research*, 16(9):e198, 2014.
18. **J. Hughes**. ngspatial: An R package for fitting the centered autologistic and sparse spatial generalized linear mixed models for areal data. *The R Journal*, 6(2):81–95, 2014.
19. N. B. Paulson, A. J. Gilbertsen, J. J. Dalluge, C. W. Welchlin, **J. Hughes**, W. Han, T. S. Blackwell, T. A. Laguna, and B. J. Williams. The arginine decarboxylase pathways of host and pathogen interact to impact inflammatory pathways in the lung. *PLOS ONE*, 9(10):e111441, 2014.
- § 20. E. J. Nelson, **J. Hughes**, J. M. Oakes, B. Thyagarajan, J. S. Pankow, and S. L. Kulasingam. Human papillomavirus infection in women who submit self-collected vaginal swabs after internet recruitment. *Journal of Community Health*, 1–8, 2014.
- § 21. E. J. Nelson, S. L. Kulasingam, and **J. Hughes**. Spatial patterns of human papillomavirus-associated cancers within the state of Minnesota, 1998–2007. *Spatial and Spatiotemporal Epidemiology*, 9:13–21, 2014.
22. C. Ziegler, J. Ellermann, M. Nissi, R. Goebel, **J. Hughes**, M. Benson, P. Holmberg, R. Frei, and P. Morgan. Acetabular cartilage assessment in patients with femoroacetabular impingement using T2* mapping with arthroscopic verification. *Radiology*, 271(2):512–523, 2014.
23. D. Shrivastava, L. Utecht, J. Tian, **J. Hughes**, and J. T. Vaughan. In vivo radiofrequency heating in swine in a 3T (123.2 MHz) birdcage whole-body coil. *Magnetic Resonance in Medicine*, 72(4):1141–1150, 2014.
24. **J. Hughes**, S. Shastry, W. O. Hancock, and J. Fricks. Estimating velocity for processive motor proteins with random detachment. *Journal of Agricultural, Biological, and Environmental Statistics*, 18(2):204–217, 2013.
25. **J. Hughes** and M. Haran. Dimension reduction and alleviation of confounding for spatial generalized linear mixed models. *Journal of the Royal Statistical Society, Series B*, 75(1):139–159, 2013.
26. D. Shrivastava, A. Abosch, **J. Hughes**, U. Goerke, L. DelaBarre, R. Visaria, N. Harel, and J. T. Vaughan. Heating induced near deep brain stimulation lead electrodes during magnetic resonance imaging with a 3T transceive volume head coil. *Physics in Medicine and Biology*, 57:5651–5665, 2012.
27. **J. Hughes**, W. O. Hancock, and J. Fricks. Kinesins with extended neck linkers: A chemomechanical model for variable-length stepping. *Bulletin of Mathematical Biology*, 74:1066–1097, 2012.

28. **J. Hughes**, M. Haran, and P. C. Caragea. Autologistic models for binary data on a lattice. *Environmetrics*, 22(7):857–871, 2011.
29. **J. Hughes**, W. O. Hancock, and J. Fricks. A matrix computational approach to kinesin neck linker extension. *Journal of Theoretical Biology*, 269(1):181–194, 2011.
30. **J. Hughes** and J. Fricks. A mixture model for quantum dot images of kinesin motor assays. *Biometrics*, 67(2):588–595, 2011.
31. **J. Hughes**, J. Fricks, and W. Hancock. Likelihood inference for particle location in fluorescence microscopy. *The Annals of Applied Statistics*, 4(2):830–848, 2010.

Manuscripts Submitted

§ = student paper

1. S. Ryan, **J. Hughes**, N. Carlson, T. Fingerlin, and L. Maier. An exploration of spatial radiomic features in pulmonary sarcoidosis. *Bulletin of Mathematical Biology*.
2. **J. Hughes**. Spatial regression and the Bayesian filter. *Statistical Science*.
3. B. Blair, **J. Hughes**, W. Allshouse, L. McKenzie, and J. Adgate. Truck and multivehicle truck accidents with injuries near Colorado oil and gas operations. *Traffic Injury Prevention*.
4. P. Meyer–Kalos, S. Potretzke, T. Line, K. Wagenmann, **J. Hughes**, C. Fisher, and K. Mueser. Integrating treatment of chronic health conditions with mental health care: Outcomes from a pilot study of integrated illness management and recovery. *Social Psychiatry and Psychiatric Epidemiology*.
5. S. Potretzke, A. Talan, **J. Hughes**, and P. Meyer–Kalos. Measuring clinical competency in implementing enhanced illness management and recovery: Preliminary validation of the Minnesota clinical competency scale for co-occurring disorders. *Psychiatric Research*.
- § 6. D. Musgrove, D. Young, **J. Hughes**, and L. E. Eberly. A sparse areal mixed model for multivariate outcomes, with an application to zero-inflated Census data. *Journal of Multivariate Analysis*.
7. J. M. Ellermann, B. Donald, S. Rohr, **J. Hughes**, M. Tompkins, B. Nelson, A. Crawford, J. Macalena. Magnetic resonance imaging of osteochondritis dessicans: Does MRI accurately and consistently predict lesions’ stability? *Magnetic Resonance Imaging*.
- § 8. M. Bezener, **J. Hughes**, and G. Jones. Bayesian spatiotemporal modeling using hierarchical spatial priors, with applications to functional magnetic resonance imaging. *Bayesian Analysis*.

Workshops and Short Courses

1. Regression Models for Spatially Referenced Data

Biostatistics Workshop Series 2017; University of Colorado Denver; July 17, 2017

Invited Presentations

1. TBD

University of Colorado Denver Department of Mathematical and Statistical Sciences; Denver, CO, USA; October 2, 2017

2. Spatial Regression and the Bayesian Filter

University of Kentucky Department of Statistics; Lexington, KY, USA; September 29, 2017

3. Statistical Models for Spatially Referenced Data

Colorado Summer Institute in Biostatistics; Aurora, CO, USA; July 11, 2017

4. Bayesian Spatiotemporal Modeling for Detecting Neuronal Activation via Functional Magnetic Resonance Imaging

Arizona State University School of Mathematical and Statistical Sciences; Tempe, AZ, USA; April 7, 2017

5. T2* Relaxation Time of Acetabular and Femoral Cartilage with and without Intra-Articular Gadopentetate Dimeglumine in Patients with Femoroacetabular Impingement

University of Colorado Denver Department of Radiology; Aurora, CO, USA; February 8, 2017

6. Disease Severity Classification Using Quantitative Magnetic Resonance Imaging Data of Cartilage in Femoroacetabular Impingement

University of Colorado Denver Department of Radiology; Aurora, CO, USA; December 8, 2016

7. Hierarchical Copula Regression Models for Areal Data

2nd International Conference on Statistical Distributions and Applications; Niagara Falls, Canada; October 15–16, 2016

8. Fast, Fully Bayesian Spatiotemporal Inference for fMRI Data

XXVIIIth International Biometric Conference (IBC 2016); Victoria, BC, Canada; July 10–16, 2016

9. Fast, Fully Bayesian Spatiotemporal Inference for fMRI Data

2016 ICSA Applied Statistics Symposium; Atlanta, GA, USA; June 12–15, 2016

10. Bayesian Spatiotemporal Modeling for Detecting Neuronal Activation via Functional Magnetic Resonance Imaging

Yale University Department of Biostatistics; New Haven, CT, USA; April 12, 2016

11. Bayesian Spatiotemporal Modeling for Detecting Neuronal Activation via Functional Magnetic Resonance Imaging

University of Colorado Denver Department of Biostatistics and Informatics; Aurora, CO, USA; February 4, 2016

12. Bayesian Spatiotemporal Modeling for Detecting Neuronal Activation via Functional Magnetic Resonance Imaging

Colorado State University Department of Statistics; Fort Collins, CO, USA; January 28, 2016

13. Bayesian Spatiotemporal Modeling for Detecting Neuronal Activation via Functional Magnetic Resonance Imaging

Virginia Tech Department of Statistics; Blacksburg, VA, USA; January 14, 2016

14. Fast, Fully Bayesian Spatiotemporal Inference for fMRI Data

MCMSki V; Lenzerheide, Switzerland; January 4–7, 2016

15. Fast, Fully Bayesian Spatiotemporal Inference for fMRI Data

- WJAR/IMS 2015 Annual Meeting; Boise, ID, USA; June 14–17, 2015
16. Estimating Velocity for Processive Motor Proteins with Random Detachment
St Olaf College; Northfield, MN, USA; May 4, 2015
 17. Estimating Velocity for Processive Motor Proteins with Random Detachment
University of California Riverside Department of Statistics; Riverside, CA, USA; December 9, 2014
 18. Estimating Velocity for Processive Motor Proteins with Random Detachment
SIAM Conference on the Life Sciences (LS14); Charlotte, NC, USA; August 4–7, 2014
 19. Disease Severity Classification Using Quantitative Magnetic Resonance Imaging Data of Cartilage in Femoroacetabular Impingement
University of Minnesota Summer Institute in Biostatistics; Minneapolis, MN, USA; June 27, 2014
 20. Estimating Velocity for Processive Motor Proteins with Random Detachment
ENAR 2014 Spring Meeting; Baltimore, MD, USA; March 16–19, 2014
 21. Advances in MCMC for Spatial Generalized Linear Mixed Models
2013 Joint Statistical Meetings; Montréal, QC, Canada; August 3–8, 2013
 22. Estimating Velocity for Processive Motor Proteins with Random Detachment
Istanbul Medeniyet University Department of Statistics; Istanbul, Turkey; June 13, 2013
 23. Dimension Reduction and Alleviation of Confounding for Spatial Generalized Linear Mixed Models
University of Miami Spatial Statistics Conference 2012; Miami, FL, USA; December 13–15, 2012
 24. Dimension Reduction and Alleviation of Confounding for Spatial Generalized Linear Mixed Models
ENVR Workshop on Environmetrics 2012: Spatial Modeling and Inference for Environmental Science; Raleigh, NC, USA; October 4–6, 2012
 25. Autologistic Models for Binary Data on a Lattice
International Chinese Statistical Association 2011 Applied Statistics Symposium; New York City, NY, USA; June 26–29, 2011
 26. Dimension Reduction and Confounding in Spatial Generalized Linear Models
Iowa State University Department of Statistics; Ames, IA, USA; March, 2011
 27. Dimension Reduction and Confounding in Spatial Generalized Linear Models
Oregon State University Department of Statistics; Corvallis, OR, USA; February, 2011
 28. Dimension Reduction and Confounding in Spatial Generalized Linear Models
Los Alamos National Laboratory Statistical Sciences Group; Los Alamos, NM, USA; February, 2011
 29. Dimension Reduction and Confounding in Spatial Generalized Linear Models
Virginia Tech Department of Statistics; Blacksburg, VA, USA; February, 2011
 30. Dimension Reduction and Confounding in Spatial Generalized Linear Models
University of Minnesota Division of Biostatistics; Minneapolis, MN, USA; January, 2011

Contributed Presentations

1. Hierarchical Copula Regression Models for Areal Data
Spatial Statistics 2017; Lancaster, UK; July 4–7, 2017
2. Hierarchical Copula Regression Models for Areal Data
WNAR/IMS 2017 Annual Meeting; Santa Fe, NM, USA; June 25–28, 2017
3. Disease Severity Classification Using Quantitative Magnetic Resonance Imaging Data of Cartilage in Femoroacetabular Impingement
3rd Annual Conference for Statistical Methods in Imaging; Pittsburgh, PA, USA; May 31–June 2, 2017
4. Estimating Velocity for Processive Motor Proteins with Random Detachment
The 5th Annual Winter q-bio Meeting; Poipu, HI, USA; February 21–24, 2017
5. Fast, Fully Bayesian Spatiotemporal Inference for fMRI Data
5th Nordic–Baltic Biometric Conference; Reykjavik, Iceland; June 8–10, 2015
6. Fast, Fully Bayesian Spatiotemporal Inference for fMRI Data
ENAR 2015 Spring Meeting; Miami, FL, USA; March 15–18, 2015
7. Bayesian Inference for Gaussian Copula Regression Models
2014 Joint Statistical Meetings; Boston, MA, USA; August 2–7, 2014
8. Estimating Velocity for Processive Motor Proteins with Random Detachment
XXVIIth International Biometric Conference (IBC 2014); Florence, Italy; July 6–11, 2014
9. Fast, Fully Bayesian Spatiotemporal Inference for fMRI Data
7th Annual Bayesian Biostatistics and Bioinformatics Conference; Houston, TX, USA; February 12–14, 2014
10. Dimension Reduction and Alleviation of Confounding for Spatial Generalized Linear Mixed Models
Spatial Statistics 2013; Columbus, OH, USA; June 4–7, 2013
11. Time-Varying Copula Models for Longitudinal Data
ENAR 2013 Spring Meeting; Orlando, FL, USA; March 10–13, 2013
12. Dimension Reduction and Alleviation of Confounding for Spatial Generalized Linear Mixed Models
2012 Joint Statistical Meetings; San Diego, CA, USA; July 28–August 2, 2012
13. Dimension Reduction and Alleviation of Confounding for Spatial Generalized Linear Mixed Models
ISBA 2012 World Meeting; Kyoto, Japan; June 25–29, 2012
14. copCAR: A Flexible Model for Areal Data
ENAR 2012 Spring Meeting; Washington, DC, USA; April 1–4, 2012

15. A Mixture Model for Quantum Dot Images of Kinesin Motor Assays

Gordon Research Conference: Stochastic Physics in Biology; Ventura, CA, USA; January 23–28, 2011

16. Autologistic Models for Binary Data on a Lattice

MCMSki3; Park City, UT, USA; January 5–7, 2011

17. Autologistic Models for Binary Data on a Lattice

2010 Joint Statistical Meetings; Vancouver, BC, Canada; July 31–August 5, 2010

18. A Mixture Model for Quantum Dot Images of Kinesin Motor Assays

Eastern North American Region of the International Biometric Society 2010 Spring Meeting; New Orleans, LA, USA; March 21–24, 2010

Software

1. The `Crypt::RC6` extension for Perl
2. The `Crypt::Serpent` extension for Perl
3. The `copCAR` package for R (with Emily Goren, Iowa State Department of Statistics) (current version: 2.0-2)
4. The `pearson7` package for R (current version: 1.0-2)
5. The `ngspatial` package for R (with Xiaohui Cui, Illumina) (current version: 1.2)
6. The `mcmcse` package for R (with James Flegal, University of California Riverside Department of Statistics; Dootika Vats, U of Warwick Department of Statistics; and Ning Dai, U of MN School of Statistics) (current version: 1.3-1)
7. The `batchmeans` package for R (with Murali Haran, Penn State Department of Statistics) (current version: 1.0-3)
8. The `CellularAutomaton` package for R (current version: 1.1-1)

Teaching and Advising

‡ = course developer

University of Colorado

Courses Taught

‡ Statistical Literacy for Radiologists, spring 2017

BIOS 6611, Biostatistical Methods I, fall 2016 (substantially revised the curriculum)

Postdocs Mentored

Allison Shapiro (Epidemiology)

Master's Projects Directed

Sarah Ryan (Biostatistics, 2017; co-advisor Nichole Carlson)

Doctoral Committees Served on

Alexandria Jensen (Biostatistics)
Lauren Hall (Statistics)
Manish Dalwani (Biostatistics, 2017)
Chris Czaja (Public Health)

Master's Committees Served on

Logan Langholz (Bioengineering)

University of Minnesota

Courses Taught

- ‡ PubH 8422 Modern Nonparametrics, fall 2012, 2013, 2014, 2015
- ‡ PubH 7406 Advanced Regression and Design, spring 2012, 2013, 2014, 2015

Doctoral Students Advised

Donald Musgrove (Biostatistics, 2016; co-advisor Lynn Eberly)
Martin Bezener (Statistics, 2015; co-advisor Galin Jones)
Lisa Henn (Biostatistics, 2015; co-advisor Jim Hodges)

Master's Projects Directed

Xu Guo (Biostatistics, 2015)
Jeremiah Aakre (MPH, 2014)
Michelle Warren (Biostatistics, 2014)
Eleena Iisakka (Biostatistics, 2014)
Emily Goren (Biostatistics, 2014)
Xiaohui Cui (Biostatistics, 2013)

Doctoral Committees Served on

Yang Yang (Statistics)
Dootika Vats (Statistics, 2017)
– also Dootika's co-mentor (with Charles Geyer) for Google Summer of Code 2015
Emre Eftelioglu (Computer Science)
Christina Knudson (Statistics, 2016)
Felipe Acosta (Statistics, 2015)
Erik Nelson (Epidemiology, 2014)
Ethan Van Norman (School Psychology, 2014)
Harrison Quick (Biostatistics, 2013)
Wenjun Kang (Biostatistics)

Master's Committees Served on

Tyler Kinzy (Biostatistics, 2016)
Andrew Nicklawsky (Biostatistics, 2014)
Stephanie Stoway (MPH, 2014)
Logan Stuck (Biostatistics, 2013)
Bryan McCauley (Statistics, 2013)

PhD Student Academic Advisees

Brian Hart
Rosalia Alcoser (transferred)

Master's Student Academic Advisees

Xiaoyue Ma (Biostatistics, 2016)
Tyler Kinzy (Biostatistics, 2016)
Stephanie Stoway (MPH, 2014)

Frostburg State University

Courses Taught

COSC 100 Introduction to Computer Science
COSC 220 Introduction to Software Applications
COSC 240 Computer Science 1
‡ COSC 241 Computer Science 2
COSC 310 Data Structures and Algorithm Analysis
‡ COSC 330 Web Design and Development
‡ COSC 350 Low-Level Programming Concepts
COSC 489 Capstone Course
‡ COSC 491 Seminar in Computer Science: Perl + Web Development
‡ COSC 491/591 Seminar in Computer Science: Java Certification Preparation
‡ COSC 499 Individual Problems in Computer Science

Service to the Profession

Member, WNAR Regional Advisory Board, 2017–2019
External Reviewer for Faculty Promotion and Tenure at Robert Morris University, 2017
Member, Byar Award Committee, 2017
Member, Applications Subcommittee, Midwest Statistics Research Colloquium, 2013

Service to the University/College/Department

University of Colorado

Coordinator, Biostatistics Workshop Series 2017

Member, Compass Steering Committee, 2016–present

University of Colorado, Department of Biostatistics and Informatics

Member, MS Exam Committee, 2017

Chair, CBC Research Associate Search Committee, spring 2017

Member, Informatics Search Committee, spring 2017

University of Colorado, Department of Radiology

Judge, 2017 Spring Research Symposium

Member, Research Committee, 2017–present

Member, Psychometrician Search Committee, spring 2017

University of Minnesota

Member, OVPR Research Misconduct Investigation Panel, 2014–2015

University of Minnesota, School of Public Health

Team for Environment/Water, SPH 2030 Strategic Plan

University of Minnesota, Division of Biostatistics

Member, Computing Committee, 2014–2015 (Chair, 2015)

Member, Exam Committee, 2015

Member, Search Committee, spring 2013, fall 2013, fall 2014

Member, Seminar Committee, 2011–2012 (Chair, 2012–2015)

The Pennsylvania State University, Department of Statistics

Vice President, Student Advisory Committee, 2009–2010

Frostburg State University, Department of Computer Science

Chair, Curriculum Committee

Member, Equipment Committee

Member, Search Committee