Curriculum Vitae

John Hughes

Academic Rank

Associate Professor

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, 2016–2018

University of Minnesota, Twin Cities

Assistant Professor of Biostatistics, 2011–2016

The Pennsylvania State University, University Park

Research Assistant to John Fricks, 2008–2011

Teaching Assistant to 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 Statistical Institute

International Association for Statistical Computing

International Environmetrics Society

International Society for Bayesian Analysis

American Statistical Association

Institute of Mathematical Statistics

International Biometric Society

Society for Industrial and Applied Mathematics

Bernoulli Society

Heterodox Academy

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 A*

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

Completed Grants

1. **Role:** **Co-Investigator**
   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
   Award: 10% salary support

2. **Role:** **Co-Investigator**
   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: 2016–2018
   Award: 20% salary support

3. **Role:** **Co-Investigator**
   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: 2016–2017
   Award: 25% salary support

4. **Role:** **Co-Investigator**
   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
Award: 12.5% salary support

5. **Role:** **Co-Investigator**
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
Award: 12.5% salary support

6. **Role:** **Principal Investigator**
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
Award: 20% salary support

7. **Role:** **Co-Investigator**
Title: University of Minnesota Clinical and Translational Science Institute (UMN CTSI)
PI: Bruce Blazar
Source: NIH/NCATS UL1 TR000114 and 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
Award: 20% salary support

8. **Role:** **Principal Investigator and sole author of proposal**
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
Award: $35,000

9. **Role:** **Co-Investigator**
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
Award: 9% salary support

10. **Role:** **Principal Investigator and sole author of proposal**
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
Award: $26,072

Pending Grants

1. **Role:** **Principal Investigator**
Title: Spatial Radiomics for Pulmonary Sarcoidosis
Source: Colorado Clinical and Translational Sciences Institute Novel Methods Development Program
Purpose: This project will (1) yield a collection of spatially varying spatial radiomic biomarkers for pulmonary sarcoidosis, and (2) yield efficient, mature, user-friendly functional regression software suitable for use by non-statisticians. This work will also serve as the pilot for a broader collaborative grant application integrating radiomic features with clinical and genetic characteristics.
Period: 2018–2019
Award: 11% salary support

2. **Role:** **Co-Investigator**
Title: Effect of Increased Lean Mass on Postural Blood Pressure in Older Adults with Low Lean Mass
PI: Melissa Benton
Source: NIH R21
Purpose: Falls are a serious and costly problem in older adults, and are linked to hydration status and orthostatic hypotension. Current fall prevention guidelines for older adults with orthostatic (postural) hypotension recommend withdrawal of anti-hypertension medications, placing them at risk for long-term consequences of hypertension. If successful, this study will provide an alternate non-pharmacologic management strategy that allows older adults to maintain medication therapy for hypertension and cardiovascular disease.
Period: 2018–2020
Award: 10% salary support

3. **Role:** **Co-Investigator**
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
Award: 15% salary support

4. **Role:** **Co-Investigator**
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
Award: 10% salary support

5. **Role:** **Co-Investigator**
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
Award: 8–20% salary support

6. **Role:** **Co-Investigator**
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
Award: 5–10% salary support

7. **Role:** **Co-Investigator**
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: 2018–2023
Award: 10% salary support

8. **Role:** **Biostatistician**
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: 2018–2021
Award: 5–30% salary support

9. **Role:** **Co-Investigator**
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: 2018–2023
Award: 10–20% salary support

10. **Role:** **Co-Investigator**
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: 2018–2020
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. 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. In ?, editors, *Modern Statistical Methods for Spatial and Multivariate Data*. Springer, in preparation.

2. 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, 2018.

Peer-Reviewed Journal Articles

1. B. Blair, S. Brindley, **J. Hughes**, E. Dinkeloo, L. McKenzie, and J. Adgate. Measuring environmental noise from airports, oil and gas operations, and traffic with smartphone applications: Laboratory and field trials. *Journal of Exposure Science and Environmental Epidemiology*, in press.

2. B. Blair, **J. Hughes**, W. Allshouse, L. McKenzie, and J. Adgate. Truck and multi-vehicle truck accidents with injuries near Colorado oil and gas operations. *International Journal of Environmental Research and Public Health*, in press.

3. M. Bezener, **J. Hughes**, and G. Jones. Bayesian spatiotemporal modeling using hierarchical spatial priors, with applications to functional magnetic resonance imaging. *Bayesian Analysis*, in press.

4. L. McKenzie, B. Blair, **J. Hughes**, W. Allshouse, N. Blake, D. Helmig, P. Milmoe, H. Halliday, D. Blake, and J. Adgate. Ambient non-methane hydrocarbon levels along Colorado's Northern Front Range: Acute and chronic health risks. *Environmental Science & Technology*, in press.

5. 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.

6. E. Kürüm, **J. Hughes**, and R. Li. Time-varying copula models for longitudinal data. *Statistics and Its Interface*, in press.

7. 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*, 5(08):E742–E745, 2017.

8. 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.

9. 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.

10. 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*, 78(4):441–448, 2017.

11. D. Musgrove, **J. Hughes**, and L. E. Eberly. Hierarchical copula regression models for areal data. *Spatial Statistics*, 17:38–49, 2016.

12. 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.

13. 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.

14. D. Musgrove, **J. Hughes**, and L. E. Eberly. Fast, fully Bayesian spatiotemporal inference for fMRI data. *Biostatistics*, 17(2):291–303, 2016.

15. 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.

16. 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.

17. 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.

18. **J. Hughes**. copCAR: A flexible regression model for areal data. *Journal of Computational and Graphical Statistics*, 24(3):733–755, 2015.

19. 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.

20. 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.

21. 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.

22. **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.

23. 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.

24. 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.

25. 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.

26. 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.

27. 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.

28. **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.

29. **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.

30. 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.

31. **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.

32. **J. Hughes**, M. Haran, and P. C. Caragea. Autologistic models for binary data on a lattice. *Environmetrics*, 22(7):857–871, 2011.

33. **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.

34. **J. Hughes** and J. Fricks. A mixture model for quantum dot images of kinesin motor assays. *Biometrics*, 67(2):588–595, 2011.

35. **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

1. **J. Hughes**. Sklar's Omega: A Gaussian copula-based framework for assessing agreement. *Econometrics and Statistics*.

2. K. Dannull, J. Stein, **J. Hughes**, and B. Kline–Fath. Grading of liver herniation in cases of congenital diaphragmatic hernia: Further refining neonatal mortality.

3. **J. Hughes**. Spatial regression and the Bayesian filter. *Statistical Science*.

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. 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*.

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

   Bayesian Statistics: A Paradigm for 21st Century Science; Tucson, AZ, USA; April 20, 2018

2. Spatial Regression and the Bayesian Filter

   University of Kentucky Department of Statistics; Lexington, KY, USA; February 9, 2018

3. Spatial Regression and the Bayesian Filter

   University of Colorado Denver Department of Mathematical and Statistical Sciences; Denver, CO, USA; November 6, 2017

4. Regression for Binary Outcomes

   University of Colorado Denver Department of Radiology; Aurora, CO, USA; October 18, 2017

5. Statistical Models for Spatially Referenced Data

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

6. 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

7. 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

8. 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

9. Hierarchical Copula Regression Models for Areal Data

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

10. Fast, Fully Bayesian Spatiotemporal Inference for fMRI Data

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

11. Fast, Fully Bayesian Spatiotemporal Inference for fMRI Data

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

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

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

13. 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

14. 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

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

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

16. Fast, Fully Bayesian Spatiotemporal Inference for fMRI Data

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

17. Fast, Fully Bayesian Spatiotemporal Inference for fMRI Data

    WNAR/IMS 2015 Annual Meeting; Boise, ID, USA; June 14–17, 2015

18. Estimating Velocity for Processive Motor Proteins with Random Detachment

    St Olaf College; Northfield, MN, USA; May 4, 2015

19. Estimating Velocity for Processive Motor Proteins with Random Detachment

University of California Riverside Department of Statistics; Riverside, CA, USA; December 9, 2014

20. Estimating Velocity for Processive Motor Proteins with Random Detachment

    SIAM Conference on the Life Sciences (LS14); Charlotte, NC, USA; August 4–7, 2014

21. 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

22. Estimating Velocity for Processive Motor Proteins with Random Detachment

    ENAR 2014 Spring Meeting; Baltimore, MD, USA; March 16–19, 2014

23. Advances in MCMC for Spatial Generalized Linear Mixed Models

    2013 Joint Statistical Meetings; Montréal, QC, Canada; August 3–8, 2013

24. Estimating Velocity for Processive Motor Proteins with Random Detachment

    Istanbul Medeniyet University Department of Statistics; Istanbul, Turkey; June 13, 2013

25. 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

26. 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

27. 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

28. Dimension Reduction and Confounding in Spatial Generalized Linear Models

    Iowa State University Department of Statistics; Ames, IA, USA; March, 2011

29. Dimension Reduction and Confounding in Spatial Generalized Linear Models

    Oregon State University Department of Statistics; Corvallis, OR, USA; February, 2011

30. Dimension Reduction and Confounding in Spatial Generalized Linear Models

    Los Alamos National Laboratory Statistical Sciences Group; Los Alamos, NM, USA; February, 2011

31. Dimension Reduction and Confounding in Spatial Generalized Linear Models

    Virginia Tech Department of Statistics; Blacksburg, VA, USA; February, 2011

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

Teaching and Advising

♮ = course developer

University of Colorado

Courses Taught

♮ BIOS 7717, Bayesian Inference, spring 2018

♮ 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

Maxene Meier (Biostatistics, 2018; co-advisor Katie Colborn)

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

Aixin Zhang (Statistics; co-advisor Erin Austin)

Doctoral Committees Served on

Alexandria Jensen (Biostatistics)

Lauren Hall (Statistics)

Manish Dalwani (Biostatistics, 2017)

Chris Czaja (Public Health)

Master's Committees Served on

Andrea Fidell (Public Health)

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, 2017–2018

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, 2016–2018

University of Colorado, Department of Biostatistics and Informatics

Coordinator, Imaging Working Group, fall 2017–2018

Member, MS Exam Committee, 2017

Chair, CBC Research Associate Search Committee, spring, fall 2017, spring 2018

Member, Informatics Search Committee, spring 2017

University of Colorado, Department of Radiology

Coordinator, Radiology Pilot Research and Faculty Development Grant Program, fall 2017

Judge, 2017 Spring Research Symposium

Member, Research Committee, 2017–2018

Member, Biostatistician Search Committee, fall 2017

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