

Casey M. Jelsema, PhD

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Education

- Ph.D., Statistics**, Western Michigan University Aug. 2013
Estimation and Inference for Spatial and Spatio-temporal Mixed Effects Models
Advisor: Rajib Paul
- M.S., Statistics**, Western Michigan University Dec. 2011
- B.S., Statistics**, Grand Valley State University Apr. 2008

Publications and Manuscripts in Preparation

- **Jelsema C.M.** & Peddada S.D. Optimal placement of knots for large scale spatial data with applications to NIEHS' GuLF Study. *To be submitted.*
- **Jelsema C.M.** & Peddada S.D. CLME: An R package for linear mixed effects models under inequality constraints. *To be submitted.*
- **Jelsema C.M.**, Kwok R., Engel L.S., Sandler D.P., & Peddada S.D. The influence of pre-baseline demographic and health characteristics on participation in the GuLF STUDY. *To be submitted.*
- **Jelsema C.M.** & Paul R. An empirical bayesian approach for selection of knot locations in reduced rank spatial models. *To be submitted.*
- **Jelsema C.M.**, Paul R., & McKean J.W. Robust estimation and fitting for reduced rank models for large spatial datasets. *Under review.*
- Paul R., **Jelsema C.M.**, & Lau K.W. (2014). A flexible class of reduced rank spatial models for large non-Gaussian datasets. Accepted, peer reviewed Book Chapter in "Current Trends in Bayesian Methodology with Applications" edited jointly by Dipak K. Dey, Umesh Singh and A. Loganathan. To be published by Chapman & Hall/CRC Press.
- **Jelsema C.M.** & Paul R. (2013). Spatial Mixed Effects Models for Compositional Data with Applications to Coal Geology. International Journal of Coal Geology, 114, 33-43. DOI: 10.1016/j.coal.2013.04.004.

Presentations

Invited

- *Robust estimation and fitting of reduced rank spatial model to large data sets* Oct. 2013
International Conference on Statistical Distributions and Applications, Mt. Pleasant, MI
- *Robust Estimation and Fitting of reduced rank spatial model to large data sets* Mar. 2013
National Institute of Environmental Health Sciences, RTP, NC
- *A Brief Introduction to Geostatistics and Some Current Developments* Nov. 2012
GVSU, Allendale, MI
- *Log-normal Block Kriging on Large Multivariable Spatial Datasets* Dec. 2011
WMU, Department of Statistics Colloquia Series, Kalamazoo, MI
- *An Introduction to Meta Analysis: The Study of Studies* Nov. 2009
WMU, Department of Statistics Colloquia Series, Kalamazoo, MI

Contributed

- *Efficient Data-Driven Knot Selection for Reduced Rank Spatial Models* Aug. 2014
Joint Statistical Meetings, Boston, MA
- *Robust Estimation of Multivariable Spatial Mixed Effects Model* Aug. 2012
Joint Statistical Meetings, San Diego, CA
- *Log-normal Block Kriging on Large Multivariable Spatial Datasets* Mar. 2012
Midwest Statistical Research Colloquium (poster), Madison, WI
- *Self Assessment Model for Obesity Related Chronic Disease* Aug. 2011
Joint Statistical Meetings, Miami, FL
- *Paleoclimatic Reconstruction of Rainfall and Temperature in Midwest Using a Physical Statistical Model* Apr. 2011
WMU Research Day Poster Presentation, Kalamazoo, MI

Academic Awards and Honors

- Received \$1500 award from Department of Statistics, WMU Apr. 2012
- Received WMU Graduate Student Travel Fund award Nov. 2011
- Best TA of the Year, Department of Statistics, WMU Apr. 2011
- Deans List, GVSU (4 semesters) 2006 - 2008
- 'I am Grand Valley' academic leadership award (2 years) 2007, 2008
- Member, Mu Sigma Rho 2007
- Member, Pi Mu Epsilon 2007

Experience

Postdoctoral

- **Postdoctoral Research Fellow, NIEHS** Aug. 2013 - present
Methodological research on spatiotemporal models and constrained inference. Applied research on the Gulf Long-term Followup (GuLF) study assessing exposures of clean-up workers from the *Deepwater Horizon* oil spill and related health outcomes. PI: Shyamal Peddada.

Teaching

- **NIEHS, Biostatistics Branch Short Course Series** Jan., Jul. 2014
Taught *Introduction to Statistics and Experimental Design*; audience was primarily postdoctoral fellows, with some summer students (bachelor / master level).
- **Teaching Assistant, Western Michigan University** Aug. 2008 - Aug. 2013
Sole instructor for introductory statistics courses of varying level (including calculus based), with class sizes up to 65 students. First non-faculty to teach Statistical Methods (calculus-based statistics) at WMU. Duties included writing and grading of both homework and exams and tutoring for undergraduate statistics courses. Significant contributions to the development and maintenance of common exam and online homework system for Business Statistics program offering approximately 15 sections per semester.

Research (outside of dissertation research)

- **Graduate Research Assistant** Spring 2011, Summer 2012
Collaborated with Drs Rajib Paul and Rex Lau on project to reconstruct paleoclimate (rainfall and temperature) in the Midwestern states based on proxy data. This work incorporates both physical models and statistical models in the reconstruction of climate variables. Collaborators are continuing research.

- **Research Assistant** Mar - Aug. 2008
Assisted Neal Rogness, PhD (GVSU) in data analysis of pilot study investigating connection between sleeping habits and of nurses and errors made on the job.
- **Undergraduate Research Assistant** Aug - Apr. 2008
Assisted on statistical research with Soon Hong, PhD (GVSU) exploring use of power transformations on data displaying monotonic curves.

Consulting

- **Statistical Consultant** Sep - Dec. 2008
Provided assistance on statistical analysis for the master's thesis of Rachel Carpenter (Michigan Technical University) regarding the influence of alternative forms of education on motivation levels of students.
- **Statistical Consultant** Jan - Apr. 2008
Provided statistical consultation and analysis to Human Resources department for 'Benefits and Wellness' survey assessing the knowledge and activity of GVSU employees' in regards to available health and wellness options.

Departmental and Professional Service

- Reviewed manuscripts submitted to: PLoS One, Journal of Multivariate Analysis, TEST, International Journal of Coal Geology
- Treasurer, Southwest Michigan Chapter of the American Statistical Association 2009 - 2013
- Department Representative, WMU Academic Integrity Committee 2010 - 2013
- TA Mentor, Department of Statistics, WMU 2009 - 2013
- Department Representative at WMU Graduate and Professional School Fair (Exposition of graduate programs) 2010, 2012
- Department Representative at 'Major Excitement' (Academic recruitment exposition for undeclared undergraduate students) 2009-2012
- President, GVSU Math and Stats Club 2007-2008

Computing Skills

Fluent in multiple Statistical programming languages, with particular emphasis on R, Matlab, and SAS. Other statistical computing experience includes Minitab, SPSS, StatGraphics, and MS Excel.

Professional Memberships

- American Statistical Association

References

- Shyamal D. Peddada, PhD
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- Lawrence S. Engel, PhD
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