Grant D. Brown

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Contact Information

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Education

• Ph.D.	Biostatistics	University of Iowa	2012-2015
• M.S.	Biostatistics	-	2010-2012
• B.S.	Statistics	-	2006-2010
• B.A.	International Studies	-	2006-2010

Dissertation

"Application of Heterogeneous Computing Techniques to Compartmental Spatiotemporal Epidemic Models" Advisor: Dr. Jacob J. Oleson

Publications

- Ozanne, Marie V., **Brown, Grant D**., Oleson, Jacob J., et. al. (2017) Bayesian compartmental model for an infectious disease with dynamic states of infection. *Submitted to Statistical Methods in Medical Research*
- Ranapurwala, S., Carnahan, R., **Brown, G.**, Hinman, J., Casteel, C. (2017) Impact of Iowa's prescription monitoring program on opioid pain reliever prescribing patterns: An interrupted time series study 2003-2014. *Accepted to Pain Med.*
- Carnahan, R.M., **Brown, G.D.**, Letuchy, E.M., et. al. (2017) Impact of programs to reduce antipsychotic and anticholinergic use in nursing homes *Accepted to Alzheimers Dement*
- **Brown, G. D.**, Porter, A. T., Oleson, J.J., Hinman, J.A. (2017). Approximate Bayesian Computation for Spatial SEIR(S) Epidemic Models. *Accepted to Spat. Spatiotemporal Epidemiol.*
- **Brown, G. D.**, Oleson, J. J. and Porter, A. T. (2015). An empirically adjusted approach to reproductive number estimation for stochastic compartmental models: a case study of two Ebola outbreaks. *Biometrics.* DOI: 10.1111/biom.12432
- Oleson, J. J., Cavanaugh, J. E., McMurray, B., **Brown, G. D.** (2015) Detecting time-specific differences between temporal nonlinear curves: Analyzing data from the visual world paradigm. *Statistical Methods in Medical Research*. PMID: 26400088
- Zhang, Y., Doucette, W. R., Pendergast, J.F., **Brown, G. D.**, Frank, J. (2015) Assessing the Effect of a Cost Management Component in a Targeted Intervention Progrom. *Value in Health*. 17(3).
- **Brown, G. D.** and Oleson, J. J. (2015) Spatiotemporal epidemic modeling with libSpatialSEIR – model specification, fitting, selection, and prediction. *Advances in Geocomputation: Geocomputation 2015 D. A. Griffith, Y. Chun and D. J. Dean. Cham, Springer International Publishing: 315-323.*
- Doucette, W. R., Pendergast, J. F., Zhang, Y. **Brown, G. D.** et. al. (2014) Stimulating Comprehensive Medication Reviews among Medicare part D. beneficiaries. *American Journal of Managed Care.* 21(6): e372-8
- **Brown, G. D.** and Oleson, J. J. Estimating and predicting epidemic behavior for the 2014 West African Ebola Outbreak – a quick spatial SEIR modeling approach (2014) Online Report.
- Editor: 2011 Iowa Health Fact Book

Invited Presentations

- "Working with Approximate Bayesian Computation in Stochastic Compartmental Models"
    - Colorado School of Mines, March 2017
- "Approximate Bayesian Computation for Compartmental Epidemic Models."
    - University of Iowa Department of Statistics, Colloquia Series, February 2016
    - JSM, August 2016
    - Emory University, November 2016
    - UI3 Student Journal Club, December 2016
- **"**SAS and R: A practical comparison for predictive analytics" UI Business Intelligence Community, November 2016
- **"**Evaluation of Educational Programs to Improve Medication Use in Nursing Home Residents." Department of Epidemiology Seminar, October 2016.
- "Predictive Modeling for First Year Enrollment." University of Iowa Institutional Data Users Group, October 2015.
- "An Empirically Adjusted Reproductive Number for Stochastic Compartmental Models." University of Iowa Department of Biostatistics, January 2015
- "Working with Epidemic Data." Cornell College, December 2015.
- "Predicting Epidemic Behavior." Online Presentation for Project Lead the Way, November 2014

Research Interests

- Bayesian Inference
- Statistical Computing
- Stochastic Compartmental Models and Spatial Generalizations
- Statistical/Machine Learning, Ensemble Learning Techniques
- Data Visualization

Teaching

Instructor

- Regression and ANOVA in the Health Sciences (Spring 2018) *University of Iowa*
- Advanced Biostatistical Computing (Fall 2017) *University of Iowa*
- Biostatistical Methods II (Spring 2017) *University of Iowa*
- Introduction to Biostatistics (Spring/Fall 2016) *University of Iowa*
- Design and Analysis of Biomedical Experiments (Summer 2013) *University of Iowa*

Guest Lecturer

- Epidemiology of Infectious Diseases (Fall 2015-2017) *University of Iowa*

Professional and Academic Experience

Assistant Professor, Department of Biostatistics, University of Iowa (2015-Present)

- UI^3 Cluster Faculty
- Developed predictive models for undergraduate student enrollment and retention with enrollment managers, and created several R packages to facilitate the use of institutional data at the University of Iowa
- Contributed to several projects focused on antipsychotic use in elderly patients
- Consulted on the development of statistical methods for grant proposals to a variety of federal funding agencies, including collaboration with the departments of Epidemiology and Community and Behavioral Health
- Participated in an interdisciplinary working group to study the opioid epidemic in Iowa
- Worked with students to provide analytical deliverables using SAS, R, knitr, rmarkdown, d3, and other technologies

Research Assistant, Center for Public Health Statistics, University of Iowa. (2009-2015)

- Helped to build and maintain the Iowa Get Screened colorectal cancer screening program data management website

- Helped to build and maintain the Care For Yourself breast and cervical cancer screening program data management website
- Conducted collaborative research with individuals in the University of Iowa College of Pharmacy, including design of data collection tools, implementation of stratified sampling techniques, and designing medication therapy management program evaluation analyses
- Worked with researchers in Community and Behavioral Health to evaluate the effectiveness of a large unplanned pregnancy prevention project

Statistical Consultant, University of Iowa College of Nursing (2013)

- Worked with PhD candidates in the College of Nursing
- Helped plan and execute statistical analyses
- Used extensive one-on-one meetings to explain statistical concepts
- Designed standard statistical analysis reports to provide to clients

Programmer, HOBU Inc. (Summer 2013)

- Developed the 'laspy' LIDAR data abstraction library for python
- Worked to create extensive technical documentation and tutorials
- Worked on LIDAR file bounding algorithms

Software Projects

MAUIDW

A UI specific R package designed to enable institutional data users at the University of Iowa to easily interact with the MAUI Data Warehouse

EMPredict

A UI specific R package intended to streamline the use of predictive models for enrollment and retention outcomes at the University of Iowa

ABSEIR

An R package implementing path-specific spatial SEIRS models using Approximate Bayesian Computing techniques.

RcppCAF

An R package designed to simplify the inclusion of the C++ Actor Framework (CAF) in software projects

libSpatialSEIR

A C++ library and associated R package interface, designed to intuitively and efficiently fit stochastic spatial SEIRS epidemic models

laspy

A python package providing read-write access to binary LIDAR files following the ASPRS .LAS file format, version 1.0-1.4, in addition to a suite of visualization tools

Service, Professional Organizations

- Co-chair Admissions Committee, Department of Biostatistics (2016-2017)
- Chair, Advanced Biostatistical Computing Exploratory Committee (2015-2016)
- Member, Statistical Methods Task Force, College of Public Health (2017)
- Member, UI Business Intelligence Community Steering Committee (2016)
- Member, Computing Committee, Department of Biostatistics (2015-2016)
- Member, Admissions and Student Recruitment Committee, Department of Biostatistics (2015-2016)
- Biostatistics department representative, undergraduate subgroup of the Curricula Innovations Committee, College of Public Health (2015)
- Member, American Statistical Association (2015-present)
- Member, International Biometric Society (2015-present)

References

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