Caitlin Ward

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Education

University of Iowa — Iowa City, IA

Ph.D., Biostatistics — Expected May 2021

Dissertation Title: Advances in Spatio-Temporal Infectious Disease Modeling

Advisors: Dr. Jacob Oleson and Dr. Grant Brown

University of Iowa — Iowa City, IA

M.S., Biostatistics — 2018

Preceptorship: Multiple Approaches to Showcasing Cancer Incidence in Iowa using Spatio-temporal Statistical Methods

Advisor: Dr. Jacob Oleson

Iowa State University — Ames, IA

B.S., Statistics, *Summa Cum Laude*, Minors in Mathematics and Russian Studies — 2016

Research Interests

- Infectious disease modeling
- Spatio-temporal modeling
- Network analysis
- Bayesian statistics
- Statistical Computing
- Latent growth modeling

Employment

University of Iowa — Iowa City, IA

Graduate Research Assistant, Biostatistics Consulting Center — August 2016 - May 2019, May 2020 - *present*

- Collaborate with and provide statistical analyses for University of Iowa faculty (25) and student (13) researchers across many disciplines
- Independently consulted on >20 projects as a senior consultant

Graduate Research Assistant, COVID-19 Modeling for Grinnell College — July 2020 - *present*

- Evaluated agent-based models to aid in decision-making

Graduate Research Assistant, Public Policy Center — Summer 2019

- Analyzed network connections among Iowa's seven regional Accountable Communities of Health sites

Graduate Research Assistant, Center for Public Health Statistics — August 2016 - May 2019

- Conducted data management for the Care For Yourself breast and cervical cancer screening program
- Created the Iowa Cancer Maps for the Iowa Cancer Registry website
- Facilitated long-term project with the Harkin Institute and Iowa Department of Human Services investigating Child Care Assistance in Iowa

Teaching

University of Iowa Iowa City, IA
Instructor

Course Title	Semester/Year	Delivery Method	Class Size
BIOS:4120 Introduction to Biostatistics	Summer 2019	In-person	7
	Fall 2019	Online	27
	Spring 2020	Online	33
	Summer 2020	Online	65

Guest Lecturer

- EPID:5540 Public Health Surveillance. Use of Surveillance Data for COVID-19 Modeling. Fall 2020

Publications (ORCID: 0000-0002-0806-0222)

Peer Reviewed Journal Publications

- **Ward, C.**, Oleson, J., Tomblin, B., Walker, E. (2020). Modeling Population and Subject-Specific Growth in a Latent Trait Measured by Multiple Instruments over Time using a Hierarchical Bayesian Framework. *Journal of Applied Statistics*. doi: 10.1080/02664763.2020.1817346.
- Kandemirli, S., Chopra, S., Priya, S., **Ward, C.**, Locke, T., Soni, N., Srivastava, S., Jones, K., Bathla, G. (2020) Presurgical detection of brain invasion status in meningiomas based on first-order histogram based texture analysis of contrast enhanced imaging. *Clinical Neurology and Neurosurgery*. doi: 10.1016/j.clineuro.2020.106205.
- Bathla, G., Priya, S., Samaniego, E., Deo, S. K., Fain, N. H., Soni, N., **Ward, C.**, Derdeyn, C. P. (2020). Cerebral computed tomographic angiography using third-generation reconstruction algorithm provides improved image quality with lower contrast and radiation dose. *Neuroradiology* https://doi.org/10.1007/s00234-020-02406-y
- Hartley, C. C., Renner, L. M., & **Ward, C.** (2019). A New Factor Solution for the Domestic Violence–Related Financial Issues Scale (DV-FI). *Journal of Interpersonal Violence.* https://doi.org/10.1177/0886260519860888
- **Ward, C.**, Oleson, J., Jones, K., Charlton, M. (2018). Showcasing Cancer Incidence and Mortality in Rural ZCTAs Using Risk Probabilities via Spatio-temporal Bayesian Disease Mapping. *Applied Spatial Analysis and Policy*. doi: 10.1007/s12061-018-9276-4.
- Saletta, M., Goffman, L., **Ward, C.**, & Oleson, J. (2018). Influence of Language Load on Speech Motor Skill in Children With Specific Language Impairment. *J Speech Lang Hear Res*, 61(3), 675-689. doi: 10.1044/2017_JSLHR-L-17-0066.

Journal Papers in Submission

- **Ward, C.**, Brown, G., Oleson, J. (Revisions Requested). An Individual Level Infectious Disease Model in the Presence of Uncertainty from Multiple, Imperfect Diagnostic Tests. *Biometrics.*
- Priya, S., Lui, Y., **Ward, C.**, Le, N., Neetu, S., Maheshwarappa, R., Monga, V., Zhang, H., Sonka, M., Bathla G. (Revisions Requested). Radiomics Based Differentiation Between Glioblastoma and Primary Central Nervous System Lymphoma: A Comparison of Diagnostic Performance Across Different Sequences and Machine Learning Techniques. *European Radiology.*
- Heeren, T., **Ward, C.**, Ashida, S., Sewell, D. (Submitted). Applying Network Analysis to Assess the Development and Sustainability of Multi-Sector Coalitions.

- Priya, S., Agarwal, A., **Ward, C.**, Locke, T., Monga, V., Bathla G. (Submitted) Survival prediction in glioblastoma on post-contrast imaging using filtration based first-order texture analysis.
- Priya, S., Lui, Y., **Ward, C.**, Le, N., Neetu, S., Maheshwarappa, R., Monga, V., Zhang, H., Sonka, M., Bathla G. (Submitted). Radiomics Based Differentiation Between Glioblastoma and Primary Central Nervous System Lymphoma: A Comparison of Diagnostic Performance Across Different Sequences and Machine Learning Techniques.
- Priya, S., Lui, Y., **Ward, C.**, Le, N., Neetu, S., Maheshwarappa, R., Monga, V., Zhang, H., Sonka, M., Bathla G. (Submitted). Radiomics Based Differentiation Between Glioblastoma, CNS Lymphoma and Brain Metastases: Comparing Diagnostic Performance Across MRI Sequences and Machine Learning Models.
- Priya, S., **Ward, C.**, Locke, T., Neetu, S., Maheshwarappa, R., Monga, V., Bathla G. (Submitted). Differentiation of glioblastoma from primary central nervous system lymphoma on post-contrast imaging using filtration based first-order texture analysis- Comparison of multiple machine learning models.
- Priya, S., Lui, Y., **Ward, C.**, Le, N., Neetu, S., Maheshwarappa, R., Monga, V., Zhang, H., Sonka, M., Bathla G. (Submitted). Machine Learning based Differentiation of Glioblastoma from Brain Metastasis using MRI derived Radiomics.

Honors and Awards

- Ada Louise Ballard and Seashore Dissertation Fellowship, University of Iowa — Spring 2021
- University of Iowa Dare to Discover Banner Campaign, Featured Researcher — 2021
- William R. Clarke Graduate Teaching Assistant Award, University of Iowa — 2020
- University of Iowa Council on Teaching Outstanding Teaching Assistant Award — 2020
- Recipient of Thank a Teacher note of appreciation through the Center for Teaching — 2020
- Leon F. Burmeister Memorial Scholarship Award, University of Iowa — 2018
- William R. Clarke Graduate Research Assistant Award, University of Iowa — 2018
- George W. Snedecor Undergraduate Award, Iowa State University — 2015

Presentations

Invited Talks

- Introduction and Demonstration of an Interactive COVID-19 Forecasting Tool. University of Iowa College of Public Health Spotlight Series on COVID-19. Virtual presentation. July 2020
- Accountable Communities of Health: Measuring Connectivity and Sustainability using Network Analysis. University of Iowa Public Policy Center. Iowa City, IA. October 2019

Conference Presentations

- An Individual Level Infectious Disease Model in the Presence of Uncertainty from Multiple, Imperfect Diagnostic Tests. Virtual presentation. *Joint Statistical Meetings.* August 2020
- A Spatio-Temporal Infectious Disease Model in the Presence of Uncertainty from Multiple, Imperfect Diagnostic Tests. Speed poster presentation. *Women in Statistics and Data Science Conference. Seattle, WA.* October 2019
- Modeling Population and Subject-Specific Growth in a Latent Trait Measured by Multiple Instruments Over Time Using a Hierarchical Bayesian Framework. Poster presentation. *Joint Statistical Meetings. Denver, CO.* August 2019

Funding

University of Iowa Libraries Open Educational Resources (OER) Grant 2020

- "Simulation Based Inference in Introductory Statistics." Co-Principal Investigator. Total award amount: $6,000
  - Creation of an interactive OER with embedded Shiny applications using simulation-based approaches to illustrate statistical concepts

Service

Department of Biostatistics, University of Iowa

- Biostatistics Student Organization (BSO) Mentorship Chair, August 2020 - *present*
- Graduate Student Team Leader, COVID-19 Modeling Web Application, May 2020 - August 2020
- Biostatistics Student Organization (BSO) President, August 2019 - August 2020
- Administrative Committee, August 2019 – August 2020
- Web-Based Instruction Resource Committee, August 2019 - August 2020
- Biostatistics Student Organization (BSO) Treasurer, August 2018 - August 2019

University of Iowa

- Graduate & Professional Student Government (GPSG) Grant Reviewer, August 2019 - August 2020

Professional

- Refereed articles for the following journals
  - PLOS ONE
  - JAMA Network Open
  - Statistics in Medicine

Professional Activity

- Member, American Statistical Association (ASA)
- Center for the Integration of Research, Teaching and Learning (CIRTL) Practitioner Level
  - Teaching as Research (TAR) project: Evaluating Student Attitudes and Engagement in a Project-Enhanced Online Introduction to Bisotatistics Course
- Member, Phi Beta Kappa

References

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