Aaron Osgood-Zimmerman

Curriculum Vitae
October 1, 2021

CONTACT INFORMATION

University of Washington
Department of Statistics
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Seattle, WA 98195

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CURRENT POSITION

2021 **University of Washington** Seattle, WA
Doctoral Candidate

EDUCATION

2022 **Ph.D., Statistics, University of Washington** Seattle, WA
Dissertation topic: Spatio-temporal statistics focusing on health outcomes
Advisor: Jon Wakefield

2015 **M.S., Statistics, University of Washington** Seattle, WA
Research: Spatio-temporal statistics focusing on climate applications
Advisor: Peter Guttorp

2011 **B.A. in Mathematics, Swarthmore College** Swarthmore, PA

2011 **B.S. in Engineering, Swarthmore College** Swarthmore, PA

TEACHING EXPERIENCE

University of Washington Seattle, WA
Instructor, Probability I, STAT 394 (2021 Sum)
Instructor, Review of Mathematics for Social Scientists, CSSS 505 (2021 Win)
Instructor, Statistical Reasoning, STAT 220 (2014 Sum)
TA, Introduction to Probability and Mathematical Statistics II, STAT 341 (2014 Win)
TA, Introduction to Probability and Mathematical Statistics III, STAT 342 (2014 Spr)
TA, Design and Analysis of Experiments, STAT 502 (2012 Aut)
TA, Elements of Statistical Methods, STAT 311 (2011 Aut, Win, Spr)

Institute for Health Metrics and Evaluation Seattle, WA
Instructor, Introduction to Geostatistical Modeling and Computing, short course (2018, 2019, 2020)
Lectured, Introduction to Bayesian Statistics and INLA, lecture series (2015, 2017)
Lectured, Statistics Bootcamp, short course (2017, 2018)

PROFESSIONAL RESEARCH EXPERIENCE

Institute for Health Metrics and Evaluation, Local Burden of Disease Team

2019-2020 **Team Lead, Model Based Geostatistics Research Scientist**

Led a team of statisticians and software engineers to develop high-resolution spatial-temporal models used by researchers across the Local Burden of Disease team to estimate and predict the leading causes of children-under-5 deaths. Our team provided a modeling platform that could be tailored to specific applications and was deployable across a large-scale computing cluster. We developed the statistical model to suit the needs of new applications and to refine and improve the predictions. I supervised and mentored masters, doctoral students, and young researchers at the institute.

2016-2019 **Model Based Geostatistics Researcher**

Developed and applied innovative methods in geospatial analysis to produce high-quality and policy- relevant estimates of health and health-related indicators at 5×5km resolution. Created and led a variety of statistics-focused internal courses for researchers across the institute.

PEER-REVIEWED PUBLICATIONS

† denotes co-lead authorship

2021 Kinyoki D†, **Osgood-Zimmerman A**†, Bhattacharjee, N†, Local Burden of Disease Anaemia Collaborators. "Anemia prevalence in women of reproductive age in low- and middle-income countries between 2000 and 2018." *Nature Medicine*. Accepted, in press.

2020 Kinyoki D†, **Osgood-Zimmerman A**†, Local Burden of Disease Child Growth Failure Collaborators. "Mapping child growth failure across low-and middle-income countries." *Nature* 577, no. 7789 (2020): 231.

2019 Brady OJ, **Osgood-Zimmerman A**, Kassebaum NJ, Ray SE, de Araújo VE, da Nóbrega AA, Frutuoso LC, Lecca RC, Stevens A, Zoca de Oliveira B, de Lima Jr JM. "The association between Zika virus infection and microcephaly in Brazil 2015–2017: An observational analysis of over 4 million births." *PLOS Medicine* 16, no. 3 (2019): e1002755.

2018 **Osgood-Zimmerman A**†, Millear AI†, Stubbs RW, Shields C, Pickering BV, Earl L, Graetz N, Kinyoki DK, Ray SE, Bhatt S, Browne AJ. "Mapping child growth failure in Africa between 2000 and 2015." *Nature* 555, no. 7694 (2018): 41.

2018 Graetz N, Friedman J, **Osgood-Zimmerman A**, Burstein R, Biehl MH, Shields C, Mosser JF, Casey DC, Deshpande A, Earl L, Reiner RC. "Mapping local variation in educational attainment across Africa." *Nature* 555, no. 7694 (2018): 48.

2018 Reiner Jr RC, Graetz N, Casey DC, Troeger C, Garcia GM, Mosser JF, Deshpande A, Swartz SJ, Ray SE, Blacker BF, Rao PC, **Osgood-Zimmerman A**. "Local variation in childhood diarrheal morbidity and mortality in Africa, 2000-2015." *New England Journal of Medicine* 379.12 (2018): 1128-1138.

2017 Golding N†, Burstein R†, Longbottom J, Browne AJ, Fullman N, **Osgood-Zimmerman**

A, Earl L, Bhatt S, Cameron E, Casey DC, Dwyer-Lindgren L. "Mapping under-5 and neonatal mortality in Africa, 2000–15: a baseline analysis for the Sustainable Development Goals." *The Lancet* 390, no. 10108 (2017): 2171-2182.

2017 Deribe K, Cano J, Giorgi E, Pigott DM, Golding N, Pullan RL, Noor AM, Cromwell EA, **Osgood-Zimmerman A**, Enquselassie F, Hailu A. "Estimating the number of cases of podoconiosis in Ethiopia using geostatistical methods." *Wellcome Open Research* (2017): 2:78.

2015 Bolin D, Guttorp P, Januzzi A, Jones D, Novak M, Podschwit H, Richardson L, Särkkä A, Sowder C, **Zimmerman A**. "Statistical prediction of global sea level from global temperature." *Statistica Sinica* (2015): 351-367.

2014 Guttorp P, Januzzi A, Novak M, Podschwit H, Richardson L, Sowder CD, **Zimmerman A**, Bolin D, Särkkä A. "Assessing the uncertainty in projecting local mean sea level from global temperature." *Journal of Applied Meteorology and Climatology* 53, no. 9 (2014): 2163-2170.

2012 Wang SC, **Zimmerman A**, McVeigh B. "Confidence Intervals for the Duration of Mass Extinction." *Paleobiology* (2012), 38(2), 265-277.

PREPRINTS OR IN PREPARATION

2021 **Osgood-Zimmerman A**, Mercer L, Wakefield J, Ferlay J, Plummer M, Bray F. "Joint Modeling of Cancer Incidence and Mortality: Estimating Rated of Breast Cancer in Europe" *Manuscript in preparation.*

2021 **Osgood-Zimmerman A**, Wakefield J. "A Statistical Introduction to Template Model Builder: A Flexible Tool for Spatial Modeling" *Manuscript submitted for review.* Preprint available on arXiv

INVITED PRESENTATIONS

2018 **Osgood-Zimmerman A**. "Mapping multiple diseases and risk factors: practical lessons from diagnosing modeled spatiotemporal health predictions." Presented at: Royal Statistical Society 2018 International Conference; Sept 3-6, 2018; Cardiff, Wales.

2017 **Osgood-Zimmerman A**. "The Big 5: mapping the leading causes of under-5 deaths in Africa and around the world." Presented at: International Workshop on Disease Mapping in Low-resource Settings; Sept 14-15, 2017; Lancaster, UK.

GRADUATE STUDENT RESEARCH EXPERIENCE

2014-2015 **Research Assistant**

University of Washington, Department of Statistics

Implemented novel Bayesian hierarchical models to model subsurface ocean circulation using both MCMC and INLA and developed spatio-temporal models for climatic season change point detection using temperature datasets.

2013 **Research Assistant**
University of Washington, Department of Statistics
Developed and tested a positive and unlabeled machine learning classification algorithm specifically tailored for applied research applications on Twitter data.

2013 **Research Intern**
Webtrends, Seattle, WA
Implemented hidden Markov models on text-based clusters of URL strings to study different regimes of web-based user behavior.

SERVICE AND UNIVERSITY CITIZENSHIP

Department

2020 PhD admission applications review

2013-2014 Graduate Student Representative
Student faculty liaison and graduate student organizer

2012-2013 Lead Teaching Assistant
Organized the Statistics Study and Tutor Center

University

2011-2012 Graduate and Professional Student Senator

Profession

2018-2020 Professional Mentor
Mentored younger researchers and data analysts at IHME

2014-2016 STATMOS Webmaster
Research Network for Statistical Methods for Atmospheric and Oceanic Sciences

2014-2016 AMS Probability and Statistics Committee

Reviewer for:

PLOS: Neglected Tropical Diseases
Lancet Planetary Health

MEDIA COVERAGE

2018 World View Letter, by Kofi Annan, in *Nature* 555, 7 (2018).

PERSONAL

Computer Skills

Expert in R, including parallelization and visualization.
Fluent in Git, TEX (LATEX, BIBTEX), and with Emacs.
Familiar with Python, C++, SQL, Bash, Matlab, Mathematica, HTML.

Interests

Spending time with my family, cycling, ultimate frisbee, hiking, camping, baking bread, cooking, playing piano, building and playing synthesizers, reading science fiction

REFERENCES

† denotes teaching reference

Dr. Jon Wakefield
Professor of Statistics and Biostatistics
University of Washington
Relationship: Dissertation advisor
Tel: (206) 616-6292
Email: jonno@uw.edu

Dr. Peter Guttorp†
Professor Emeritus of Statistics, University of Washington
Professor at the Norwegian Computing Center
Relationship: Research advisor and teaching mentor
Tel: (206) 388-7612
Email: guttorp@uw.edu

Dr. June Morita†
Professor Emeritus of Statistics, University of Washington
Relationship: Teaching mentor
Tel: (206) 388-7619
Email: june@uw.edu

Dr. Simon Hay
Professor of Health Metrics Sciences, University of Washington
Director of Research Strategy at the Institute for Health Metrics and Evaluation
University of Washington
Relationship: Professional supervisor and mentor
Tel: (206) 897-2800
Email: sihay@uw.edu