Spencer G. Wadsworth

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Summary

I am in my 4th year as a PhD student of statistics at Iowa State University. I currently am researching probabilistic forecast representations and specifically their application in predicting disease outbreaks. Specific methodologies in my research include state-space modeling, discrepancy modeling, multi-fidelity models, and MCMC sampling. I have experience in statistical consulting and specifically in modeling data from multiple sources, reliability/survival modeling of warranty/product insurance claims, image processing, machine learning in forensics and complex Bayesian hierarchical modeling.

Education

Iowa State University – Ames, IA   Anticipated Graduation Spring/Summer 2024
    PhD Statistics

Iowa State University – Ames, IA   Graduated May 2022
    MS Statistics 3.7/4.0
    Excellence in teaching award
    Relevant Courses: Advanced Bayesian Theory, Advanced Stochastic Processes, Bayesian Analysis, Advanced Probability Theory, Time Series Analysis, Advanced Statistical Methods, Theory & Application of Survey Sampling, Statistical Learning

Brigham Young University – Provo, UT   Graduated August 2019
    BS Statistics, Math Minor 3.8/4.0
    Recipient of university full-tuition academic scholarship

Skills & Qualifications

- Programming in R, SAS, SQL, MATLAB, C++, and Julia languages
- tidyverse, dplyr, stan, jags
- Experience with Linux Command Line, Git, and Supercomputing
- High level Spanish Communication

Work Experience

Iowa State University, Department of Statistics – Ames, IA   August 2023 – Present
    Statistics Consultant
- Analyze research questions of graduate students from departments of agriculture, business, and engineering
- Recommend appropriate statistics methodologies for answering questions

Boeing – Charleston, SC   May 2022 – August 2022
    Graduate Researcher
- Researched and developed statistics methodology for modeling data combined from 2+ sources
- Sought out and worked with customers to improve procedures for testing materials, monitoring machinery, increasing safety, etc.
- Collaborated and presented with fellow statisticians and engineers recommendations for enhanced company operations

After Inc. – Norwalk, CT   January 2021 – August 2021
    Analytics Intern

- Constructed probabilistic survival models in SAS for use in product evaluation and vendor evaluation
- Consulted with companies on how to adjust supply, product pricing, and administer vendor discipline
- Wrote SQL queries for compiling hundreds of thousands of rows of data from up to 6 tables

Iowa State University, Department of Statistics – Ames, IA   September 2019 – May 2022
    Statistics Instructor
- Communicated new and often abstract statistical concepts to 60 students of varying disciplines and received from them an approval rating of 4.3/5.0
- Personalized instruction for one-on-one tutoring with struggling students who later showed marked improvement
- Administrated lectures, assignments and exams individually and with a team of 6 other instructors

CSAFE – Ames, IA   May 2020 – August 2020
    Research Assistant
- Designed machine learning algorithms that determined with 92% accuracy the probability that two images were from the same source
- Constructed variables that can be calculated from image recognition AI for use in model building
- Wrote and presented research for academic publications in forensic science

Publications

Pack, Alden R., Jared Carlson, Spencer Wadsworth, and Mark K. Transtrum. "Vortex nucleation in superconductors within time-dependent Ginzburg-Landau theory in two and three dimensions: role of surface defects and material inhomogeneities." *Physical Review B* 101, no. 14 (2020): 144504.

Cook, Mylan R., Brooks A. Butler, Katrina Pedersen, Spencer Wadsworth, Eric Todd, Kent L. Gee, Mark K. Transtrum, and Sean Warnick. "Improved automated classification of basketball crowd noise." *The Journal of the Acoustical Society of America* 145, no. 3 (2019): 1816-1816.

Butler, Brooks A., Spencer Wadsworth, Dallen Stark, Katrina Pedersen, Blake Forkey, Mylan R. Cook, Eric Todd, Kent L. Gee, and Mark K. Transtrum. "Feature reduction of crowd noise used for machine learning classification." *The Journal of the Acoustical Society of America* 146, no. 4 (2019): 2906-2906.

Nottingham, Kolby T., Katrina Pedersen, Xin Zhao, Brooks A. Butler, Spencer Wadsworth, Blake Smith, Mark K. Transtrum, Kent L. Gee, and Sean Warnick. "Supervised machine learning for crowd noise classification at collegiate basketball games." *The Journal of the Acoustical Society of America* 144, no. 3 (2018): 1829-1829.

Service Experience

Big Brothers Big Sisters -Youth Mentoring – Des Moines, Iowa   September 2021 - Present
    Mentor
- Mentor a "little brother" in scholastic, social and life skills. Mostly we just have fun!

STATers Social Club Ames, Iowa   August 2021 - Present
    President/Social Chair
- Plan, orchestrate and delegate various social activities for ISU department of statistics students and faculty

The Church of Jesus Christ of Latter-day Saints – Barcelona, Spain   January 2015 – February 2017
    Missionary
- Gained valuable communication skills with diverse audiences in Spanish
- Administrated travel, housing and coordinated conferences of up to 186 other volunteers