Manhattan, KS
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Profile

Data Scientist with 5 years of progressive experience in building and deploying advanced statistical and machine learning models, especially for risk prediction. Skilled in leveraging structured and unstructured data (e.g. geospatial, demographic, behavioral, text, imagery) to develop targeting models and predictive analytics that drive business value. Strong programming and statistical background (including regression, classification, Bayesian inference and modeling, deep learning, network analysis), with a track record of mentoring junior team members, managing technical and business-facing projects, and communicating insights to stakeholders across varied backgrounds. PhD in Statistics and committed to translating analytic rigor into strategic decisions in a collaborative environment.

Education

Kansas State University — Manhattan, KS
Ph.D., Statistics — Expected Dec 2025
B.S., Statistics and Data Science — May 2021

Project Experience

Department of Animal Science & Industry, College of Agriculture — Kansas State University
Gaussian process regression for incomplete methane emissions records — Sep 2024 – Apr 2025

- Provided statistical consultation and model development, resulting in dissertation level analysis.
- Implemented a novel model for analyzing incomplete data collected from GreenFeed system.

Department of Agronomy, College of Agriculture — Kansas State University
Predicting yield, protein, oil with spatiotemporally misaligned and sparse data — Jul 2024 – May 2025

- Consolidated multiple sources of data using data fusion methods to account for misaligned and sparse data.
- Developed a model-based approach to account for multiple sources of variability, improving predictive performance.

Department of Applied Human Sciences, College of HHS — Kansas State University
Comparing civilian and military suicide rates; IRB-12276 — Sep 2024 – Present

- Compared the reported rates of suicide, stratified by characteristics (age, gender, military branch), to civilian rates obtained from the CDC and weighted to represent demographic composition of military.
- Served as a bridge between university researchers and military researchers to tie statistical methodologies with key research questions.

Diagnostic Medicine & Pathobiology, College of Vet. Med. — Kansas State University
Risk assessment for FMD in cattle going to auction market in Kansas — Oct 2024 - Present

- Developed a stochastic model for the number of infected, undetected, and shipped farms to auction market within a given catchment area to identify high risk scenarios.
- Constructed an R Shiny application for state animal health officials (SAHOs) to obtain real-time risk assessments.

A retrospective spatiotemporal analysis of CWD in Kansas — Sep 2024 – Present

- Explored spatial, temporal, and spatiotemporal patterns of county-level chronic wasting disease across Kansas.
- Performed nonparametric hypothesis tests to determine temporal and spatial independence.

Work Experience

Kansas State University, Department of Statistics Manhattan, KS
Research Assistant – Consulting Statistician May 2023 – Present

- Designed probabilistic models and applied stochastic simulation to optimize decision-making under uncertainty in dynamic systems.
- Developed Bayesian models, Markov Chain Monte Carlo (MCMC), and stochastic processes for inference and prediction in market-like systems.
- Built scalable SAS and R code for high-frequency data analysis, optimization algorithms, and quantitative modeling.
- Modeled economic behaviors analogous to derivatives trading and market microstructure in livestock trade networks for risk assessment and prediction.

Teaching Assistant – Applied Bayesian Modeling and Prediction Jan 2025 – May 2025

- Assisted students, largely doctoral students from other disciplines, in developing and implementing applied Bayesian models using a variety of software; R, SAS, Python, JAGS, STAN.
- Supported project-based learning with an emphasis on hierarchical modeling and use of experimental or real-world data.
- Guest lectured over select topics, such as the Bayesian linear model and variable/model selection methods.

Teaching Assistant – Spatiotemporal Statistics Jan 2024 – May 2024

- Provided instructional support for a graduate course in spatial and spatiotemporal statistical methodology, inference, and prediction.
- Lectured on a variety of topics, such as spatial prediction, kriging, spatiotemporal covariance structures.
- Assisted with lectures, grading, and technical guidance using R, Python, and ArcGIS.

Lecturer – Introduction to Statistics Aug 2023 – May 2024

- Taught four sections of introductory statistics, fulfilling university's quantitative requirements for College of Arts and Sciences students.
- Developed and delivered lectures, weekly assignments, and structured assessments.
- Emphasized reproducible data analysis in R and Excel, reinforcing theoretical course content.

Corteva Agriscience May 2022 – May 2023
Statistician Johnston, IA

- Applied statistical optimization and predictive modeling for large-scale agricultural datasets, enhancing operational decisions.
- Automated data pipelines using R, SAS, and Python to incorporate time-series analysis and spatial statistics.

Skywide Logic May 2021 – Oct 2021
Data Science Intern Newport Beach, CA

- Led a data analysis team to design and execute surveys, applying statistical modeling to health and behavioral data from over 250 respondents.
- Automated data processing pipelines in Python, enabling efficient reporting of psychological and health-related insights.

AgReliant Genetics Jun 2020 – Apr 2021
Data Analyst Westfield, IN

- Built SQL-based data infrastructure linking genotype, phenotype, and environmental data for analysis in R and SAS.
- Collaborated with data science and product teams to streamline statistical reporting and phenotypic summarization.

Technical Skills

- Statistical Programming: R, Python, Stan, JAGS, BUGS, SAS, Matlab
- Scientific Computing: C++, Julia, Bash scripting
- Supervised Learning: gradient boosted trees (XGBoost, LightGBM, CatBoost), random forests, support vector machines (SVM), regularization (Lasso, Ridge, Elastic Net)
- Unsupervised Learning: clustering (k-means, Gaussian mixture models, DBScan, hierarchical), dimensionality reduction (PCA, t-SNE, UMAP), topic modeling (LDA, NMF)
- Time Series & Sequential Modeling: ARIMA, recurrent neural networks (RNNs, LSTMs), transformers for sequential data
- Advanced Methods: ensemble methods (stacking, blending, bagging), Bayesian modeling (MCMC, variational inference, hierarchical models), causal inference (propensity scores, difference-in-differences, synthetic control), survival analysis & hazard models
- Systems/Tools: Git, Linux/Unix, GitHub, LaTeX

Professional Organizations

- American Statistical Association (ASA)
- Institute of Mathematical Statistics (IMS)
- American Association for Public Opinion Research (AAPOR)
- Institute for Operations Research and the Management Sciences (INFORMS)
- International Biometric Society (IBS)

Service

- KSU Graduate Student Council Representative
- Planning Committee Co-Chair for Digital Agriculture and Advanced Analytics (DA3) International Research Symposium
- ASA Statisticians Without Borders
- Joint ASA-AAPOR Graduate Research Cohort

Funding

- Lolafaye-Coyne Scholarship (2023, 2024) - $8,000
- Holly C Fryer Statistics Scholarship (2025) - $5,000
- Pell Grant (2019-2021) - $20,000

Publications and Preprints

- **Kerns, A.W.,** et al. (2025). *Bayesian Variable Selection and Lagged Covariate Effects in Population Dynamics of Daphnia magna.* Data Science in Science (Under revision)
- **Kerns, A.W.,** et al. (2025). *Local PGF for Spatial Point Processes: A Simulation-Based Estimator for Intensity.* The American Statistician (Under review).
- **Kerns, A.W.** (2025). *Redraw the Vote: Evaluating Redistricting Effects with a Difference-in-Difference Placebo Test in Presence of Incumbency.* The American Statistician (Under review)
- **Kerns, A.W.**, et al. (2025). *Modeling FMD risk in cattle.* BMC Vet. Research (Under revision)
- Karkle, E., **Kerns, A.W.**, et al. (2025). *The impact on physiochemical properties of sorghum and wheat pound cakes.* Applied Food Research. (Under review)
- Brady, A., **Kerns, A.W.**, et al. (2025). *A retrospective spatiotemporal analysis of CWD in Kansas.* PLOS One (Accepted, Preprint)
- Bosche, L., **Kerns, A.W.**, et al. (2025). *Nitrogen nutrition index as an in-season N diagnostic method for maize yield response to N fertilization.* Field Crops Research. (Published)