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Aidan W. Kerns

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Profile

Ph.D. Candidate in Statistics with expertise in Bayesian modeling, spatiotemporal statistics, stochastic processes, and simulation-based inference. Proven experience applying advanced statistical methods to real-world data in agriculture, epidemiology, and complex & dynamic systems. Seeking data scientist, quantitative researcher or principal statistician roles in the EU with a focus on statistical modeling, risk, and dynamic systems.

Technical Skills

Programming:
- R (Advanced)
- SAS (Advanced)
- SQL (Intermediate)
- Python (Intermediate)
- C++ (Beginner)
- Rust (Beginner)
- Julia (Beginner)

Areas of Expertise:
- Bayesian Modeling
- Time Series
- Spatial Statistics
- Spatiotemporal Analysis
- Generalized Linear Models
- Causal Inference

Software:
- RStudio
- JAGS, STAN, WinBUGS/OpenBUGS
- Git
- LaTeX
- Python (NumPy, Pandas)
- SAS
- SQL Server
- ArcGIS/QGIS

Education

Ph.D. in Statistics, Kansas State University *2022 - Expected Dec 2025*
Dissertation: *Statistical modeling of spatiotemporal disease processes and causal spatial inference*

B.Sc. in Statistics and Data Science, Kansas State University *2019–2021*

Professional Experience

Research Assistant, Kansas State University *May 2024 – Present*

- Developed spatial risk models for Foot-and-Mouth Disease in livestock markets using hierarchical Bayesian inference.
- Conducted retrospective spatiotemporal analysis of Chronic Wasting Disease in Kansas using disease count data.
- Modeled nitrogen optimization for maize yield using probabilistic crop growth and remote sensing data.
- Construct RShiny Applications to assist in power analysis and effective sample size calculations.

Statistician, Corteva Agriscience *May 2022 – May 2023*

- Led statistical analysis on European and US crop trials for fungicide efficacy under varying environmental conditions.
- Developed synergistic response models for mixture treatments in rice using generalized linear models and SAS/R.

Data Science Intern, Skywide Logic, LLC *May 2021 - Oct 2021*

- Led a team of 4 other interns to develop a survey and analysis pipeline, based on previous responses from 250+ college students.
- Combined modern psychological research and assumptions to inform statistical model and produce reports that influence future marketing initiatives.
- Constructed partially-autonomous data analytics tools in Python for descriptive and broad understanding of responses.

Data Analyst, AgReliant Genetics, LLC *Jun 2020 – Apr 2021*

- Engineered a centralized data repository for genotype-environment-trait trial data using SQL and R.
- Collaborated across biology, data science, and product development to automate phenotypic summaries.

Selected Publications

- **Kerns, A.** & Hefley, T. (2025). *Local PGF for Estimating Intensity Surfaces of Spatial Point Processes.* Annals of Applied Statistics (submitted).
- **Kerns, A.** & Hefley, T. (2025). *Overdispersion and the Lurking Covariate.* The American Statistician (submitted).
- **Kerns, A.**, Yadav, S. & Sanderson, M. (2025). *Modeling risk of Foot-and-Mouth Disease in cattle.* BMC Vet. Research (submitted).
- **Kerns, A.** (2025). *Spatiotemporal difference-in-difference-in-differences for redistricting effects, accounting for incumbency advantage and COVID-19.*. Political Science Research and Methods (submitted).
- **Kerns, A.** & Hefley, J. (2025). *Lagged covariate effects in Daphnia dynamics.* Data Science in Science (under revision).
- Brady, A., **Kerns, A.**, et al. (2025). *Chronic wasting disease in Kansas.* PLOS One (under revision).

Teaching Experience

Lecturer, Introduction to Statistics (STAT 225) *Fall 2023 – Spring 2024*
Taught four sections of a core undergraduate course fulfilling the university's quantitative requirement. Developed and delivered lectures, assessments, and assignments. Emphasized reproducible data analysis in R. Received strong student evaluations for clarity and approachability.

Teaching Assistant, Applied Bayesian Modeling and Prediction (STAT 768) *Spring 2025 (anticipated)*
Assisted graduate students in developing and implementing applied Bayesian models using JAGS and R. Supported project-based learning with emphasis on hierarchical modeling and simulation-based inference.

Teaching Assistant, Spatio-Temporal Statistics (STAT 764) *Spring 2024*
Provided instructional support for a graduate course in spatial and temporal modeling. Topics included spatial prediction, kriging, and spatiotemporal covariance structures. Assisted with lectures, grading, and technical guidance in R, Python, and ArcGIS.

Citizenship

United States. Native English speaker.
Looking to relocation within the EU.