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INFORMATION
Blocker 435
Department of Statistics
Texas A&M University
College Station, TX 77843

EXPERIENCE **Texas A&M University**, College Station, Texas

Assistant Professor, 2022 - *Present*

- Department of Statistics

Cornell University, Ithaca, New York

Postdoctoral Associate, 2020 - 2022

- Principal Investigator: David Matteson (Department of Statistics and Data Science)

EDUCATION **University of Missouri**, Columbia, Missouri

Ph.D., Statistics July 2020

- NSF Graduate Research Fellow, 2016 - 2020
- Dissertation Title: *Alternative Learning Strategies for Spatio-Temporal Processes of Complex Animal Behavior*
- Advisor: Christopher K. Wikle

M.A., Statistics Dec 2018

Colorado State University, Fort Collins, Colorado

B.S., Statistics and Wildlife Biology, December 2014

- *Magna Cum Laude* with Honors

PUBLICATIONS

Hoose, B.W., Frisbie, M., **Schafer, T.L.J.**, Wu, X.B., Lopez, R.R., and Pierce, B.L. *Submitted to Journal of Wildlife Management* Landscape drivers of scaled quail occurrence across a large spatiotemporal scale: implications for habitat management.

Schafer, T.L.J. and Matteson, D.S. (2024). Locally Adaptive Shrinkage Priors for Trends and Breaks in Count Time Series. *Technometrics*

Wu, H., **Schafer, T.L.J.**, and Matteson, D.S. (2024). Adaptive Bayesian Changepoint Analysis and Local Outlier Scoring. *Journal of Business and Economic Statistics*

Wu, H., **Schafer, T.L.J.**, Ryan, S., and Matteson, D.S. (2024). Drift vs Shift: Decoupling Trends and Changepoint Analysis. *Technometrics*

VonBank, J.A., Cunningham, S.A., **Schafer, T.L.J.**, Weegman, M.D., Link, P.T., Wikle, C.K., Kraai, K.J., Collins, D.P., and Ballard, B.M. 2023. Joint use of location and acceleration data to quantify habitat use transitions in arctic-nesting geese. *Scientific Reports*.

Davidow, M., **Schafer, T.L.J.**, Merow, C., Che-Castaldo, J.P., Duker, M., Feng, E., and Matteson, D.S. 2023. Clustering future scenarios based on predicted range maps. *Methods for Ecology and Evolution*.

Owolabi, O.O., **Schafer, T.L.J.**, Smits, G.E., Sengupta, S., Ryan, S., Wang, L., Matteson, D.S., Sherman, M.G., and Sunter, D.A. 2023. Role of variable renewable energy penetration on electricity price and its volatility across independent system operators in the United States. *Data Science in Science*.

Cunningham, S.A., **Schafer, T.L.J.**, Wikle, C.K., Ballard, B.M., VonBank, J.A., Bearhop, S., Hilton, G.M., Walsh, A.J., Griffin, L., Fox, A.D., and Weegman, M.D. 2022. Quantifying the influence of behavioral contributions to reproductive attempts in geese of contrasting migration strategy. *Oecologia*.

Feng, M.E., Owolabi, O.O., **Schafer, T.L.J.**, Sengupta, S., Wang, L., Matteson, D.S., Che-Castaldo, J.P., and Sunter, D.A. (2022). Analysis of animal-related electric outages using species distribution models and community science data. *Environmental Research: Ecology*.

Schindler, A.R., Cunningham, S.A., **Schafer, T.L.J.**, Sinnot, E.A., Clements, S.J., DiDonato, F.M., Mosloff, A.R., Walters, C., Shipley, A.A., Weegman, M.D., and Zhao, Q. 2022. Joint analysis of structured survey and citizen science data improves precision of bird population trends and the extent of improvement depends on life history strategy. *Scientific Reports*

Schafer, T.L.J., Wikle, C.K., and Hooten M.B. 2022. Bayesian inverse reinforcement learning for collective movement. *Annals of Applied Statistics*

Che-Castaldo, J.P., Cousin, R., Daryanto, S., Deng, G., Feng, M.E., Gupta, R.K., Hong, D., McGranaghan, R.M., Owolabi, O.O., Qu, T., Ren, W., **Schafer, T.L.J.**, Sharma, A., Shen, C., Sherman, M.G., Sunter, D.A., Wang, L., and Matteson, D.S. 2021. Critical Risk Indicators (CRIs) for the electric power grid: A survey and discussion of interconnected effects. *Environment Systems and Decisions*.

Schliep, E.M., **Schafer, T.L.J.**, and Hawkey, M. 2021. Distributed lag models to identify the cumulative effects of training and recovery in athletes using multivariate ordinal wellness data. *Journal of Quantitative Analysis in Sports*. **17(3)**: 241-254.

Schafer, T.L.J., Wikle, C.K., Ballard, B.M., VonBank, J.A., and Weegman, M.D. 2020. Bayesian Markov model with Pölya-Gamma sampling for estimating individual behavior transition probabilities from accelerometer classifications. *Journal of Agricultural, Biological and Environmental Statistics*. **25**: 365-382.

Schafer, T.L.J. and Wikle, C.K. 2019. Alternative learning strategies for collective animal movement. In *JSM Proceedings*, Statistical Computing Section. Alexandria, VA: American Statistical Association.

Schafer, T.L.J., Breck, S.W., Baruch-Mordo, S., Lewis, D.L., Wilson, K.R., Mao, J.S., and Day, T.L. 2018. American black bear den-site selection and characteristics in an urban environment. *Ursus*, **29**: 25-31.

WORKS IN PROGRESS *Available upon request*

Feng, M.E., **Schafer, T.L.J.**, Che-Castaldo, C., Sherman, M.G., Matteson, D.S., and Che-Castaldo, J.P. Novel biodiversity indicators based on financial metrics.

Acosta, J. P., Park, S. W., Stewart, D. , Lozano-Carvazos, E. A., Webb, S.L. and **Schafer, T.L.J.**. Applying Machine Learning to Interpolate Movement Trajectories of Desert Bighorn Sheep.

BOOK REVIEWS

Schafer, T.L.J. 2023. Statistics for Ecologists: A Frequentist and Bayesian Treatment of Modern Regression Models By John Fieberg (Ed.). 2022. Self-published online. pp. 526. \$0.00 online: (<https://fw8051statistics4ecologists.netlify.app/>). *Journal of Wildlife Management*, **87**: e22464.

GRANTS/FUNDING

Sandia National Labs (\$270,000), PI; funding 2023
“Machine Learning For Data-Driven Closure Models In Earth Systems”

National Park Service (\$112,000), PI; funding 2023
“Generate a quantitative assessment of the implications of, and alternatives to, fully opening Johns Hopkins Inlet to cruise ship visitation”

National Park Service (\$48,000), PI; funding 2024
“Supplement to: Generate a quantitative assessment of the implications of, and alternatives to, fully opening Johns Hopkins Inlet to cruise ship visitation”

Temporal Embeddings for Animal Movement Trajectory Interpolation. (Invited) The International Environmetrics Society Conference, Adelaide, Australia. December 2024.

Innovative Bayesian Approaches for Robust Trend Filtering and Changepoint Detection in Complex Time Series

- (Invited) Department of Statistics, University of California Santa Cruz. March 2025.
- (Invited) National Institute for Applied Statistics Research Australia, University of Wollongong, Australia. December 2024.
- (Invited) Department of Statistics, Purdue University. November 2024.

Drift vs Shift: Decoupling Trends and Changepoint Analysis. (Invited; Technometrics Session) Fall Technical Conference, Nashville, Tennessee. October 2024.

MACHINE LEARNING DATA-DRIVEN CLOSURE MODELS

- (Invited) SIAM Conference on Computational Science and Engineering, Fort Worth, Texas. February 2025.
- USACM Thematic Conference on Uncertainty Quantification for Machine Learning Integrated Physics Modeling, Arlington, Virginia. August 2024.

Bayesian models for complex animal movement data

- International Statistical Ecology Conference, Swansea, Wales. July 2024.
- (Invited) ISBA World Meeting, Venice, Italy. July 2024.
- (Invited) Conference On Applied Statistics In Agriculture And Natural Resources, Ames, Iowa. May 2024.

Reinforcement Learning and Step Selection Analysis for Animal Movement Data.

- (Invited) Envibayes Workshop, Fort Collins, Colorado. September 2023.
- (Invited) WNAR, Anchorage, Alaska. June 2023.
- (Invited) Joint Statistical Meetings, Washington, D.C. August 2022.

Trend Filtering with Adaptive Bayesian Changepoint Analysis for Count Time Series.

- (Invited) Joint Statistical Meetings, Portland, Oregon. August 2024.
- (Invited) Department of Mathematics & Statistics, South Dakota State University. November 2023.
- (Invited) University of Missouri 60th Anniversary Conference, Columbia, Missouri. October 2023.
- (Invited) Joint Statistical Meetings, Toronto, Ontario, Canada. August 2023.
- (Invited) SRCOS, Waco, Texas. June 2023.
- (Invited) Conference on Advances in Time Series Analysis, Chicago, Illinois. May 2023.
- (Invited) Department of Statistics, University of California Santa Cruz. February 2023.
- (Invited) Entomological Society of America Annual Meeting, Vancouver, British Columbia, Canada. November 2022.
- (Invited) Department of Statistics, Kansas State University. November 2022.
- (Invited) Institute of Mathematical Statistics Annual Meeting, London, U.K. June 2022.

Bayesian Inverse Reinforcement Learning for Collective Animal Movement.

- (Invited; Discussion) Applied Biodiversity Sciences Reading Group, Texas A&M University. March 2025.
- (Invited) School of Mathematics and Statistics, San Diego State University. February 2022.
- (Invited) Department of Statistics and Applied Probability, University of California Santa Barbara. February 2022.
- (Invited) Department of Statistics, Pennsylvania State University. January 2022.
- (Invited) Department of Statistics, Florida State University. January 2022.
- (Invited) Department of Statistics, University of Kentucky. January 2022.
- (Invited) School of Mathematics and Statistics, University of Melbourne. December 2022.
- (Invited) Department of Mathematical Sciences, University of Arkansas. December 2022.
- (Invited) Department of Statistics, Texas A&M University. December 2022.
- (Invited) Department of Mathematical Sciences, Montana State University. December 2022.

Inverse reinforcement learning for animal movement data.

- (Invited) The Wildlife Society Annual Conference, Spokane, Washington. November 2022.

- Women in Statistics and Data Science, Virtual. October 2021.

Continuous shrinkage priors with dependence. Joint Statistical Meetings, Virtual. July 2021.

Inverse reinforcement learning for agent-based models.

- (Invited) The Wildlife Society Annual Conference, Lexington, Kentucky. November 2023.
- (Invited) SAMSI Pros and Cons of ABMs for Epidemic Modeling, Virtual. June 2021.
- (Invited) Joint Statistical Meetings, Virtual. August 2020.

Inverse reinforcement learning for animal behavior from environmental cues. (Invited) ENAR 2020 Spring Meeting, Virtual. March 2020.

Alternative learning strategies for collective animal movement. Joint Statistical Meetings, Denver, Colorado. August 2019

Estimating behavioral transition probabilities of greater white-fronted geese using non-homogenous Markov models. Joint Statistical Meetings, Vancouver, British Columbia. July 2018.

Black Bear Den Characteristics and Site Selection Near Urban Aspen, Colorado. The Wildlife Society Annual Conference, Pittsburgh, Pennsylvania. October 2014.

- Awarded best undergraduate contributed paper.

POSTER PRESENTATIONS

Trend Filtering with Adaptive Bayesian Change point Analysis for Count Time Series.

- ASA Section for Statistics in the Environment Workshop. October 2022.
- IMS New Researchers' Conference, Washington D.C. August 2022.

Non-linear forecasting with echo state networks. Ecological Forecasting Initiative, Washington D.C. May 2019.

Estimating environmental effects on behavioral transitions of geese.

- Missouri Natural Resources Conference, Osage Beach, Missouri. February 2019.
- Statistics and the Environment section of the American Statistical Association biennial workshop, Asheville, North Carolina. October 2018

AWARDS

ConocoPhillips Data Science Faculty Fellow	2023, 2024
NSF Graduate Research Fellowship	2016
Benjamin A. Gilman International Scholarship	2013

TEACHING EXPERIENCE

Professor

Texas A&M University, Statistics Dept., College Station, TX.

Reproducible Computations (STAT 600) - Fall 2024
 Database & Computing Tools for Data Science (STAT 624) - Spring 2024, 2025
 Statistical Computing (STAT 404) - Spring 2023, Fall 2023, 2024
 Frontiers: Reinforcement Learning (STAT 691) - Fall 2023
 Statistical Methods (STAT 303) - Fall 2022

Graduate Instructor

<i>University of Missouri, Statistics Dept., Columbia, MO.</i>	2015-2017
Introductory Statistical Reasoning (STAT 1200)	
Introduction to Probability and Statistics I (STAT 2500)	
Introduction to Probability and Statistics II (STAT 3500)	

Teaching Assistant

<i>Colorado State University, Biology Dept., Fort Collins, CO.</i>	2011
Biology of Organisms Lab (LIFE 103)	

PROFESSIONAL ACTIVITIES

Secretary, ASA Section for Statistics and the Environment 2025-*current*

Treasurer, ASA Section for Statistics and the Environment 2024

Associate Editor, [Journal of Applied Statistics: Environmental Statistics and Data Science](#)

Associate Editor, [Data Science in Science](#)

Lead Organizer, Knowledge Discovery and Data Mining (KDD) 2021 Workshop
[Data-Driven Exploration of Interconnected Risks in Complex Human-Natural Systems](#) Aug 2021

Instructor, High school STAT Camp, 2023

Member, Early Career Women in Statistics Mutual Mentoring 2020-*Current*

Member, [Ecological Forecasting Initiative Student Working Group](#) 2019-*Current*

• [R-Shiny Working Group Leader](#) Jun - Nov 2020

Twitter Outreach, [Code-RLadies](#) 2019-2020

Organizer and Mentor, [ASA Datafest Mid-MO](#) 2017-2020

Mentor, Sports Statistics Initiative 2019-2020

Graduate Student Leader, Space-Time Reading Group 2018-2019

Vice President, [Statistics Graduate Student Association](#) 2015-2017

REFeree

Data Science in Science

Stat

Journal of the American Statistical Association: Applications and Case Studies

Environmetrics

Sankhya B

PRX Life

The American Statistician

Journal of the Royal Statistical Society Series A

Ecology and Evolution

PLOS ONE

Frontiers in Applied Mathematics and Statistics

Spatial Statistics

Biometrics

Journal of Agricultural, Biological and Environmental Statistics

Journal of the Royal Statistical Society Series C

PNAS

Ecology

Methods in Ecology and Evolution

Society for Petroleum Engineering Journal

Ursus

Biology Letters

MENTORING EXPERIENCE

Postdoctoral Research Associates

Benjamin Hoose

Graduate Students (Current)

Tara McNeil (TAMU, PhD-Entomology) Com. Member

Maria Teleki (TAMU, PhD-Computer Science) Com. Member

Elizabeth Chun (TAMU, MS-Statistics), Proj. Advisor

Dave Pearce (TAMU, MS-Wildlife Bio), Com. Member

Vincenzo Donofrio (TAMU, MS,PhD-Astronomy), Com. Member

Pooja Sandeep Joshi (TAMU, PhD-Math), Com. Member

Georgia Smits (Cornell University, PhD-Statistics), Proj. Advisor

Graduate Students (Graduated)

Benjamin Hoose (TAMU, PhD-Wildlife Bio), Com. Member; 2024

Valerie Espinosa (TAMU, MS-Statistics), Proj. Advisor; 2024

Madeleine Barham (TAMU, MS-Wildlife Bio), Com. Member

ABD 2023

PROFESSIONAL
MEMBERSHIPS

- Institute of Mathematical Statistics
- American Statistical Association
- Association for Computing Machinery
- The Wildlife Society
- American Geophysical Union