Taylor Grimm

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EDUCATION

Baylor University   Waco, TX
Ph.D. in Statistics, GPA: 3.97/4.00   Jul. 2021 – May 2025 (Expected)

  Dissertation: "Improved Real-time Fault Detection in Multivariate Processes: Handling Autocorrelation,

  Contamination, and Small Sample Sizes"

  Advisor: Dr. Mandy Hering

Baylor University   Waco, TX
M.S. in Statistics, GPA: 3.94/4.00   Jul. 2021 – Dec. 2022

Brigham Young University   Provo, UT
B.S. in Statistical Science, minor in Mathematics, GPA: 3.99/4.00   Aug. 2018 – Apr. 2021

EXPERIENCE

Baylor University   Waco, TX
Graduate Assistant - Research   Jul. 2022 - Present

- Collaborated with interdisciplinary experts to comprehend data and processes, perform robust analyses, and effectively communicate results.
- Designed and evaluated multivariate statistical methods to improve anomaly detection in complex processes.
- Developed interactive R Shiny applications to assist in exploratory data analysis of multiple variables across several datasets.

Graduate Assistant - Statistical Consulting   Jan. 2022 – Jul. 2022

- Provided statistical consulting services to clients across diverse disciplines, delivering actionable insights and quality reports.
- Adapted to different problems by applying various statistical methods and ensuring statistical rigor.

Graduate Assistant - Data Science Workshop Development   Aug. 2021 – Dec. 2021

- Assisted in the development of a data science workshop (using R) for water/wastewater treatment professionals.
- Created practice problems and solutions for topics ranging from data wrangling and visualization to statistical and machine learning models.

Brigham Young University   Provo, UT
Statistics Research Assistant   Jun. 2020 – May 2021

- Built and used multivariate Bayesian models (using R and Stan) to analyze and understand noisy environmental data.
- Contributed as second author to the development of a manuscript, resulting in publication in a reputable journal.

RELEVANT COURSEWORK

Multivariate analysis ● High-dimensional data analysis ● Computational statistics ● Bayesian theory and methods ● Time series ● Advanced data-driven methods (statistical and machine learning methods) ● SAS programming ● Design of Experiments and Clinical Trials

Publications

- **Grimm, T. R.**, Branch, A., Thompson, K. A., Salveson, A., Zhao, J., Johnson, D., Hering, A. S., and Newhart, K. B. (2024). Long-term statistical process monitoring of an ultrafiltration water treatment process. *ACS ES&T Engineering*.

- Heiner, M., **Grimm, T.**, Smith, H., Leavitt, S. D., Christensen, W. F., Carling, G. T., and St. Clair, L. L. (2023). Multivariate receptor modeling with widely dispersed Lichens as bioindicators of air quality. *Environmetrics*, 34(3), e2785. https://doi.org/10.1002/env.2785

In Progress

- **Grimm, T. R.**, Newhart, K. B., and Hering, A. S. (2024+). Nonparametric threshold estimation of autocorrelated statistics in multivariate statistical process monitoring. *Under review*.

- **Grimm, T. R.**, Villez, K. Newhart, K. B., and Hering, A. S. (2024+). A review of methods for handling limited or contaminated historical data in statistical process monitoring.

Research Experience and Interests

- Outlier/anomaly detection

- Multivariate statistics

- Time series

- Machine learning

Presentations

- "Multivariate Fault Detection for Water Reuse: An Ultrafiltration Case Study", Water Quality Technology Conference, American Water Works Association, Dallas, TX. (November 2023)

- "Nonparametric Threshold Estimation of Autocorrelated Statistics in Multivariate Statistical Process Monitoring", Southern Regional Council on Statistics, Baylor University, Waco, TX. (June 2023) †

- "Bayesian Multivariate Receptor Modeling with Lichens as Biomonitors", Student Research Conference, Brigham Young University, Provo, UT. (February 2021)

    † : poster

Computer Skills

- **Advanced:** R

    ∗ tidyverse (dplyr, ggplot2, etc.), tidymodels, Keras (TensorFlow), RMarkdown, rstan, rjags

- **Proficient:** LaTeX, Git/GitHub, SAS

- **Working Knowledge:** Python

    ∗ pandas, numpy, scikit-learn

Languages

- **English:** Native

- **Tagalog:** Advanced

Scholarships and Awards

- Boyd Harshburger Travel Award (Southern Regional Council On Statistics) — 2023
- Outstanding 1st Year PhD Student (Department of Statistical Science, Baylor University) — 2021–2022
- Graduate School Fellowship (Baylor University) — 2021
- Academic Scholarship — Brigham Young and Wessell/Marshall Memorial (Brigham Young University) — 2018–2021
- Eagle Scout (Boy Scouts of America) — 2015