

Katherine Delno

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Profile

I'm a statistician with a strong foundation in statistical modeling and machine learning, with experience working end-to-end from raw data cleaning to interpretable results. I enjoy tackling complex data problems, building reproducible analytical workflows, and collaborating with technical and non-technical partners to turn quantitative ideas into something useful.

Education

M.S. Statistics: Advanced Methods and Data Analysis 2025
University of Washington – Seattle, WA

B.S. Mathematics 2022
University of Nevada – Reno, NV

Technical Skills

Statistics & Data Analysis: Statistical theory (asymptotic theory, distributional theory); hypothesis testing (t-tests, likelihood ratio, Wald); uncertainty quantification (confidence intervals, calibration, conformal methods); analysis of variance and experimental design; regression and generalized linear models (linear, logistic, Poisson, Gamma); regularized regression (ridge, lasso); classification methods (linear discriminant analysis, naïve Bayes); mixed-effects models (linear mixed models, generalized linear mixed models, generalized estimating equations); causal analysis; resampling methods; multivariate methods (principal components analysis, clustering); Bayesian basics.

Data Science & Machine Learning: R (tidyverse, ranger, xgboost); Python (pandas, numpy, scikit-learn, TensorFlow, PyTorch); natural language processing and transformers (text preprocessing, embedding-based feature engineering); tree-based and ensemble methods; visualization and reporting (ggplot2, matplotlib/seaborn, Jupyter).

Experience

Private Statistics Instructor August 2025 – Present
Self-Employed – Seattle, WA

Provide one-on-one statistics instruction to high school and early college students, focusing on AP Statistics and introductory university-level courses. Develop concise mini-lessons, custom handouts, and targeted problem sets to reinforce core concepts and exam-style reasoning. Review student work with detailed feedback and adjust pacing and content to address individual learning needs.

Mentor for Statistics & Probability Directed Reading Program September 2024 – December 2024
University of Washington – Seattle, WA

Designed and delivered a one-on-one 10-week short course on statistical learning, covering topics including linear regression, classification methods, resampling techniques, and regularization. Created all course materials and lectures, guided the student through weekly discussions, and provided ongoing feedback and support to deepen their understanding.

Graduate Teaching Assistant January 2022 – June 2022
University of Nevada – Reno, NV

Served as a Graduate Teaching Assistant for an undergraduate statistics course, leading discussion sections, designing and delivering lecture materials, and providing one-on-one and group tutoring to help students understand complex statistical concepts. Mentored undergraduate students by offering academic support and career guidance.

Relevant Projects

RandomForestSpecCheck: A Permutation-Based Random Forest Diagnostic for LMMs

Developed a novel diagnostic method for detecting model misspecification in linear mixed models (LMMs) utilizing random forests and permutation testing. Achieved false-positive rates <3% and >90% power in detecting misspecification in 5400 simulated datasets and verified on real-world data.

Causal Inference on Food Insecurity and Diabetes Using NHANES

Estimated the effect of food insecurity on type 2 diabetes risk using NHANES data and augmented inverse probability weighting (AIPW). Addressed challenges of temporality and confounding in cross-sectional survey design to assess limitations and opportunities for causal analysis in public health.

A Conformal Prediction Framework for Multi-Label Movie Genre Classification

Led development of a multi-label movie genre classifier by fine-tuning a lightweight transformer and integrating conformal prediction to produce calibrated sets of genre tags, striking an effective balance between capturing all relevant labels and avoiding spurious ones.