Katelyn M. Miller

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EDUCATION

Brigham Young University

Master of Science: Statistics — **Apr 2025**, Provo, UT
- GPA: 3.90
- Session winner of 2024 BYU College of Physical and Mathematical Sciences Student Research Conference

Bachelor of Science: Statistics, Minor: Mathematics — **Apr 2023**, Provo, UT
- GPA: 3.89
- Recipient of BYU Department of Statistics Outstanding Student Employee Award 2021-22

SKILLS

Programming: R (tidymodels, tidyverse), Python (pandas, NumPy, sci-kit learn), SQL, SAS, Git, Stan, JAGS
Statistical Modeling: GLMs, mixed-effects, time series, hypothesis testing, multivariate analysis, Bayesian methods
Machine Learning: PCA, supervised and unsupervised learning, resampling methods, model stacking

EXPERIENCE

Graduate Statistics Consultant — **Jan 2 – Present**
Brigham Young University, Consulting Center — Provo, UT
- Consult with 3-4 graduate students and faculty members at a time, analyzing data for research and publications
- Specialize in analyzing data with mixed-effects models for experimental data in R
- Explain statistical concepts and methods to non-statisticians, translating results into clear insights
- Organize and lead weekly client meetings, ensuring effective collaboration and progress

Graduate Research Assistant — **Aug 2022 – Present**
Brigham Young University, Statistics Department — Provo, UT
- Analyze 2,990 car crashes on I-15 using Bayesian models, machine learning, and spatial analysis to inform Utah Department of Transportation (UDOT) safety policies
- Format scripts to run large-memory jobs on remote servers, run jobs in parallel, and save output files
- Presented findings and methods in 3 formal research conferences

Course Developer/Teaching Assistant — **May 2023 – Apr 2024, Aug 2024 – Present**
Brigham Young University, Statistics Department — Provo, UT
- TA and grade for 3 courses: Predictive Analytics, Statistical Computation, Bayesian Data Analysis
- Led 60+ students in groups and one-on-one mentoring in R programming, data analysis, and machine learning
- Created lecture materials and coding exercises to reinforce machine learning concepts in R using 'tidymodels'

Systems Engineer and Data Mining Intern — **May 2024 – Aug 2024**
GE Healthcare — Salt Lake City, UT
- Built a Python automation tool to streamline protocol document validation for C-arm manufacturing
- Deployed the tool in an online UI, improving accessibility for systems engineers
- Used regular expressions to check for 33 compliance rules, ensuring accurate phrasing and formatting
- Gathered routine feedback from engineers to improve functionality and usability

Data Analytics Intern, Compliance Risk Management — **May 2022 – Aug 2022**
Zions Bancorporation — Salt Lake City, UT
- Analyzed 200,000+ loans from 8 affiliate banks over 3 years to identify weaknesses in lending processes and flag possible violations of Fair Lending and Fair Banking laws to direct loan reviews
- Built predictive models in R ('tidymodels'), applying regression, random forests, and neural nets to predict a multiclass response and tested results with chi-square independence methods
- Quickly learned and implemented new machine learning techniques within 1 week
- Presented findings and recommendations to 7+ superiors in a 20-minute presentation

PROJECTS

Portfolio: https://katelynnelson38.github.io/my-blog/index.html
- Latent Class Analysis on University Mental Health Data (link)
- Mixed-Effects Modeling for Diets Promoting Chick Growth
- Multiclass Tree Cover Classification (Kaggle Competition)