Sean Mulherin

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Education

M.S. in Applied Statistics and Data Science, 2023 - Present

University of California, Los Angeles

M.A. in Teaching Secondary Math, 2019 - 2020

University of North Carolina, Chapel Hill

B.S. in Mathematics, 2015 - 2019

North Carolina State University

Professional Experience

Jackson Hole High School 2021 - 2023

- Math Faculty: Geometry, AP Prep Algebra II, Trigonometry/Precalculus
- Cross Country & Track Coach
- Chess Club Coach

Mountain Academy of Teton Science Schools 2020 - 2021

- Lead Math Faculty: Algebra, Geometry, IB Applications & Interpretations
- Health & Wellness Teacher
- Advisor

Carrboro High School 2019 - 2020

- Student-Teacher: Geometry, AP Calculus AB, AP Calculus BC

North Carolina State University Tutorial Center 2016 - 2018

- Math Tutor: Calculus, Foundations of Mathematics, Applied Differential Equations, Probability

Research Experience

International Research Experience for Students 2024

- Sponsored by the National Science Foundation, I traveled to Uzbekistan to engage in a 2-week workshop focusing on the mathematics of machine learning. Specific topics covered include model-based clustering, Hawkes point process, benign overfitting, generalization, double descent, mirror descent.

North Carolina State University, College of Design 2017 - 2018

- As a research assistant, I collected data pertaining to the efficacy of healthy diets on the social, emotional, and academic performance of elementary school students.

Projects

An Artificial Neural Network Approach to Identifying Diabetes Risk Status 2023

- Programmed a neural network to classify one's risk of developing type 2 diabetes after completing a 21 question survey. Model is 84% accurate overall in its predictions and trained using CDC data.

Tracking Carbonization 2023

- Completed a comprehensive analysis of the current state of carbon dioxide emissions around the world. Data was obtained from the United National Development Program and analyzed using R.

A Classification Analysis on Breast Cancer 2023

- Built and compared models to classify tumors taken from breast cancer cells as malignant or benign. Models compared include: linear discriminant analysis, quadratic discriminant analysis, support vector machines, logistic regression, random forests, naive bayes, knn. Optimal model used linear discriminant analysis to predict with 97.06% accuracy.

An Ethereum Regression Analysis 2023

- Build and compared multiple regression models to predict the USD/ETH price in the year 2030. Models include: linear, quadratic, cubic, exponential, and logarithmic.

Note: all projects can be found on my online portfolio linked above

Skills & Accolades & Misc.

DataFest Guest Speaker - Introduction to R 2024
DataFest Guest Speaker - Data Cleaning with Tidyverse 2024
UCLA Statistics Graduate Student Association - VP External Affairs 2023
R Programming Certification 2022
Python for Data Science Certification 2022
NCAA Division I Cross Country & Track Athlete 2015 - 2019