Resume

Collin Dougherty

September 7, 2023

Determine that the thing can and shall be done, and then we shall find the way.
- Abraham Lincoln

1 Overview

Summary
Driven Leader, Problem Solver, Innovator, and Researcher.

Education
M.S.; Mathematics, University of Nebraska-Omaha, 2025
B.S.; Mathematics, University of Nebraska-Lincoln, 2022
B.S.; Psychology, University of Nebraska-Lincoln, 2022
Minor; Statistics, University of Nebraska-Lincoln, 2022

Links
Personal Website: collindougherty.com
Github: github.com/collindougherty
LinkedIn: linkedin.com/in/collin-dougherty
Twitter: twitter.com/CollinD0ugherty

Software Languages / Skills
Python, R, SPSS, MATLAB, STATA, SAS, SQL, HTML, CSS

Favorite Packages
pandas, numpy, tensorflow, scikit-learn, pytorch, dash, tidyverse, tidymodels, xgboost, ggplot, matplotlib, seaborn

2 Experience

Research Data Analyst, University of Nebraska Medical-Center (2022-Present)
Spearhead the development of new cancer research in the Department of Surgical Oncology at the University of Nebraska Medical Center. Provide statistical expertise for the design, implementation and analysis of cancer research trials. Lead project management tasks including working with residents, graduate students, approval boards, faculty and surgeons to ensure the successful and timely completion of research projects. Frequently worked in Python, R, SAS, SPSS, and STATA. Presented statistical findings to a non-technical audience with regularity.

Nebraska Cornhuskers, Data Science Intern (2019-2022)
Worked in the Nebraska Athletic Performance Lab and the Husker Sports Analytics Department. Utilized statistical machine learning to analyze current player performance and build models predicting future performance. Mainly focused on modeling with random forests and GAM's, as well as multivariate linear regression. Extensive use of R and R libraries such as tidyverse and tidymodels. Worked with baseball, softball, volleyball and tennis teams. One particularly valuable experience included developing 'xStats' which I personally designed to predict how a player "should have" performed, after controlling for various luck factors. Another valuable experience was designing SDS, a model which evaluates batter swing or take decisions based on a variety of factors, such as pitch location, type, count, etc. Data collection, management, cleaning, model selection, training and testing. Worked under Tucker Zeleny and Bradley Smith, formerly with Yankee baseball analytics department.

Barna Group, Data Analyst (2021)
Through the usage of data analysis skills and methodologies, I worked to understand survey data collected from around the world. In particular, I implemented statistical tests to identify statistically significant differences in variables collected from survey data, and to identify trends and relationships over time and between variables which were presented to clients and editorial teams alike to be written about and utilized. Data was both quantitative and qualitative. In addition to analysis, I planned study methodologies and wrote survey questions with the research team, as well as coordinating studies with a variety of clients, giving them valuable statistical insights to help navigate a constantly changing landscape.

Other Experience
Resident Assistant at University of Nebraska-Lincoln (2019-2022)

3 Publications

1. Santamaria-Barria, Juan A. MD*; Nelson, Hannah BS†; Jiang, Heng MBBS†; Dougherty, Collin E. BS*; Jadhav, Snehal BS‡; Watanabe-Galloway, Shinobu PhD‡; Mammen, Joshua M. V. MD, PhD*; Mercer, David W. MD§. Open Payments Data Analysis of General and Fellowship-trained Surgeons Receiving Industry General Payments from 2016 to 2020: Payment Disparities and COVID-19 Pandemic Impact. Annals of Surgery ():10.1097/SLA.0000000000005951, June 14, 2023. — DOI: 10.1097/SLA.0000000000005951

4 Notable Projects

SDS: Quantifying the Quality of Batter Swing Decisions Using Machine Learning
xStats: Predicting Expected Batter Stats by Controlling for "Luck" Factors
Predicting NCAA March Madness Using Machine Learning with R
Effectiveness of Mask Use and Vaccination in the Prevention of COVID-19: A Mathematical Model
NCAA Baseball Transfer Portal Web Application; Built for the Nebraska Baseball Team
Development and Analysis of a Model for Predicting Salaries in Major League Baseball
Built Personal Website with Hugo for R; collindougherty.com
huskerstats.com - A website for Nebraska sports analytics tools
HuskerBot - Twitter bot which aggregates Husker news, built with Python and AWS

5 Honors

Eastman Scholar, Big Red Scholar, Chancellor's Scholar, National Merit Finalist, US Presidential Scholar Nominee, Graduation with Distinction, Craig Dickinson Memorial Scholar, 6x Dean's List

6 In the Media

Top 10 Most Outstanding Omaha Teens: Link
Big Red Scholar: Link
Craig Dickinson Memorial: Link

7 Relevant Classes

Real Analysis, Modern Algebra, Mathematical Statistics II, Mathematical Modeling Applications, Intro to Regression Analysis, Differential Equations, Single Variable Calculus, Multivariable Calculus, Statistics and Applications, Probability and Statistics I, Data Visualization and Analysis, Intro to Data Science, Sports Data Visualization and Analysis, Psychology Research and Data Analysis, Advanced Sports Data Visualization and Analysis, Linear Algebra, Group Theory, Deterministic Operations Research, Mathematical Statistics I

8 Online Courses

MIT OpenCourseWare: Classical Mechanics, General Chemistry
Coursera: Intro to Quantitative Finance in Python

9 Outside the Office/Classroom

Hobbies: Running, Lifting, Reading, Husker Sports
Interests: Frontier Tech, Psychology, Neuroscience, Economics, AI, Sports Analytics
Favorite YouTube Channels: Lex Fridman, Joe Rogan, Andrew Huberman