

Spencer Hilligoss

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Education

University of California, Irvine

Sept 2023 – Present

PhD in Statistics (Expected)

- Supervised by Dr. Annie Qu and Dr. Tianchen Qian
- GPA: 3.895/4.0
- **Coursework:** Statistical Methods, Machine Learning, Advanced Probability and Statistical Topics, Bayesian Statistics, Statistical Consulting

University of North Carolina at Chapel Hill

Aug 2019 – May 2023

BS in Statistics and Operations Research, BA in Economics

- GPA: 3.719/4.0
- **Coursework:** Stochastic Modeling, Dynamic Decision Making, Statistical Machine Learning, Financial Markets, International Economics, Advanced Microeconomic Theory, Macroeconomic Theory

Research Interests

- Representation Learning
- Statistical Machine Learning
- Personalized Medicine
- Mobile Health
- Causal Inference and Mediation Analysis

Fellowships and Awards

Diversity Recruitment Fellowship

Aug 2023

University of California, Irvine

T32 STEER in Biomedical Sciences Fellow

Aug 2025–Present

University of California, Irvine

Working Papers

Hilligoss, S., Qu, A. (2025+). “Autoencoder-Based Causal Mediation Analysis for High-Dimensional Time Series: Application to Postprandial Glycemic Response.” *Working Paper*.

Hilligoss, S., Qu, A., Qian, T. (In Preparation). “Tensor-Based Reinforcement Learning for Adaptive Insulin Dosing: A Personalized Treatment Recommendation Framework.” *Manuscript in Preparation*.

Projects

Predicting the Dow Jones Industrial Average with Sentiment-Enhanced LSTM Models

- Project demonstrating the efficacy of LSTM Models in enhancing prediction of stock indexes such as the DJIA.
- Tools Used: Python, R

Hidden Markov Model for Part-of-Speech Tagging Tasks

- Literature Review and Application of Methods to Penn Treebank dataset for STATS 230: Statistical Computing Methods.
- Tools Used: Python, R

Boom or Bust: Predicting the Success of NBA Players

- Built a predictive pipeline to forecast NBA success from NCAA statistics
- Benchmarked multiple statistical learning approaches with cross-validation and out-of-sample evaluation

- Tools Used: R

Other Research Opportunities

Harvard University, Opportunity Insights, Research and Policy Institute

Summer 2022

PREDOC Summer Program 2022: Using Big Data to Solve Economic and Social Problems. Data analytics training course directed by economists Raj Chetty, John Friedman, and Nathaniel Hendren.

- Completed a Short Research Paper as a part of the PREDOC Summer Program 2022: **S Hilligoss**, “The Lasting Impact of HOLC Redlining on Minorities in New York”. (2022)
- Tools Used: R

Teaching Experience

University of California, Irvine

Teaching Assistant

- Stats 67
- Stats 7
- Stats 295: Machine Learning and Data Science

Fall 2023

Winter, Spring 2024

Winter 2025

- Presented a lecture on Handling Data in R and Python, Web Scraping

Computing Tools

Languages: R, Python, Stata, Microsoft Excel