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 *Fall 2023*
  ○ Stats 7 *Winter, Spring 2024*
  ○ Stats 295: Machine Learning and Data Science *Winter 2025*

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

Computing Tools

Languages: R, Python, Stata, Microsoft Excel