

Rebecca Knowlton

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EDUCATION

University of Texas at Austin

Ph.D., Statistics

2020-2025

Advisor: Layla Parast

Committee: Layla Parast, Roger Peng, Antonio Linero, Elizabeth Matsui

Trinity University

B.A., Mathematics

2014-2017

Summa Cum Laude

RESEARCH EXPERIENCE

Department of Statistics and Data Sciences, University of Texas at Austin

Graduate Researcher

2022-2025

Advisor: Layla Parast

Proposed novel measures for the proportion of the treatment effect on the primary outcome that is explained by the treatment effect on the surrogate (PTE) with respect to multiple baseline covariates, via parametric and semiparametric procedures and including a bootstrapped variance estimation. Demonstrated new methodology on simulated data in a variety of settings (when models hold and do not), and illustrated methods on AIDS clinical trial data.

SISTM Team, Bordeaux Population Health Center, University of Bordeaux

Visiting Graduate Researcher

November 2023

Advisors: Layla Parast and Boris Hejblum

Presented dissertation research on complex heterogeneity in the utility of surrogate markers in department seminar and discussed future directions for the work based on feedback and overlapping interests with the SISTM team.

Department of Information, Risk and Operations Management, University of Texas at Austin

Graduate Research Assistant

Fall 2022

Advisors: Sinead Williamson and Maytal Saar-Tsechansky

Researched methods for developing AI to advise medical experts in high-stake decision-making, such as organ transplants. Developed methods aimed to complement human expertise and judgement via interpretable models while minimizing information leakage.

HONORS AND AWARDS

University of Texas at Austin Professional Development Award

2023

University of Texas at Austin Dean's Strategic Fellowship

2020-2021

Trinity University Transfer Scholarship

2014-2017

National Merit Scholarship Finalist

2013

Professional Association of Georgia Educators STAR Student Award

2012

INDUSTRY EXPERIENCE

Microsoft, Austin, TX

Data Scientist Intern, Identity and Access

Summer 2023

Piloted metrics in R to monitor efficiency and drive improvements for the building out of

new cloud environments for Microsoft Identity services. Served as the sole data scientist on a software engineering team and collaborated with the engineers to understand the complex dependencies of the buildout process and associated data.

Microsoft, Redmond, WA

Data Scientist Intern, Identity and Access

Summer 2022

Exploratory analysis of application health data within Azure Active Directory, including synthesizing information across eight datasets using Spark and understanding best practices for modern identity management. Created measure of application “blast radius” in Python to capture how interconnected an application is within an organization in the event of a security incident.

Apple, Austin, TX

Data Scientist Intern, Strategic Data Solutions

Summer 2021

Researched, engineered, and implemented new features for the primary fraud decisioning model actioning all purchases on the App Store. Collaborated cross functionally with four different teams to understand unexplored dataset of 9 billion rows, and trained machine learning model in Python to assess potential feature lift.

USAA, San Antonio, TX

Actuarial Analyst, Auto Pricing

2017-2020

Spearheaded pricing efforts for automobile insurance in Texas, the company’s largest state at \$1.9 billion written premium, and assisted in implementing behavior-based insurance and improved rate capping methodology. Led a team of five to analyze countrywide Auto loss trends and understand the drivers for frequency and severity, adjusting data as needed and making appropriate recommendations for annual Auto rate planning. Received scores of 9 or higher on the first five Casualty Actuarial Society Exams, indicating the achievement of 130% or higher of the set passing mark (with fewer than 50% of candidates passing each sitting).

TEACHING EXPERIENCE

Head Teaching Assistant

University of Texas at Austin, Department of Statistics and Data Sciences
DS 395T: Data Science for Health Discovery and Innovation

Spring 2024

Course Co-Developer

University of Texas at Austin, Department of Statistics and Data Sciences
DS 395T: Data Science for Health Discovery and Innovation

Fall 2023

Teaching Assistant

University of Texas at Austin, Department of Statistics and Data Sciences
SDS 320E: Elements of Statistics
SDS 324E: Elements of Regression Analysis

Spring 2022

Fall 2021

SAT, ACT, and Mathematics Tutor

Advantage Testing, Austin, TX
Private tutor, San Antonio, TX

2022-Present

2014-2017

SUBMITTED

Weine E, Smith SP, **Knowlton R**, Harpak A. Tradeoffs in Modeling Context Dependency in Complex Trait Genetics.

INVITED PRESENTATIONS	Bordeaux Population Health Center, University of Bordeaux, November 2023 Department of Mathematics, Trinity University, October 2023 Joint Statistical Meetings, Toronto, Ontario, August 2023
JOURNAL REFEREE	Biometrics
PROFESSIONAL MEMBERSHIPS	American Statistical Association Institute of Mathematical Statistics
SOFTWARE	cohetsurr , an R package for assessing complex heterogeneity in the utility of a surrogate marker with respect to multiple baseline covariates
COMMUNITY SERVICE	<p>Breakthrough Central Texas, Austin, TX Volunteer 2024-Present Assisted with the development and administration of a four week short course on preparing for the ACT, offered at no cost to students who will be the first in their families to attend college. Individually taught a three hour course on the mathematics section.</p> <p>The Phoenix, Austin, TX Volunteer 2023-Present Led weekly rock climbing and board game events for people in recovery and sober allies. Ran a table for National Overdose Awareness Day on campus at the University of Texas at Austin.</p> <p>Each One Teach One, San Antonio, TX Volunteer 2019-2020 Tutored mathematics one-on-one to adults studying for the GED.</p>