

# GRAHAM TIERNEY

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<http://g-tierney.github.io>

## EDUCATION

### Duke University

2018 – 2023 (*Expected*)

*PhD Candidate in Statistical Science*

- GPA: 3.9/4.0
- Selected Coursework: Bayesian methods, machine learning, time series, statistical computing.

### Carleton College

2010-2014

*BA in Mathematics/Statistics and Economics*

- Thesis Awarded Distinction: “High School Exit Exams and the Labor Market.”

## RESEARCH EXPERIENCE

### Duke Polarization Lab

2018-Present

*Work with Alexander Volfovsky (advisor), Chris Bail, and Sunshine Hillygus.*

- Designed and analyzed a field experiment to reduce political polarization by randomly pairing Democrats and Republicans to have anonymous conversations. First author on submitted paper.
- Used NLP methods to identify interpretable conversation features that contribute to depolarization. Produced a method to benchmark these causal mediation effects in text data.
- Extended LDA topic model to analyze Twitter data, jointly clustering users and tweets. Implemented an exact but slow Gibbs sampler and fast but approximate variational method. Application to US Senators’ Twitter activity recovers partisan groupings, especially of infrequent posters. [Code](#) and [paper](#).
- Analyzed election polls to identify election-specific bias with a flexible hidden Markov Model. Results presented at *Bayesian Young Statisticians Meeting* (2020) and *JSM* (2021).

### 84.51 Collaboration

2020-Present

*Work with Mike West.*

- Developed multivariate forecasting models for high-dimensional time series of retail sales at a major grocery chain.
- Estimated joint distributions of price, quantity, and revenue across 100 products and multiple geographies as functions of store-controlled discounts. Identified meaningful cross-product relationships wherein discounts for some products materially affect sales of other products.

## INDUSTRY EXPERIENCE

### Summer Research Intern & Student Technical Assistant

Summer 2021 - Present

*MIT Lincoln Laboratory – AI & Algorithms Group*

- Created a social media testbed for interventions designed to combat foreign influence campaigns and misinformation narratives.
- Designed an intervention that used text generated by a GPT-2 language model to discourage COVID-19 vaccine-related misinformation.
- Developed methods to study causal effects of social media interventions deployed on live platforms to account for interference and estimate peer effects.
- Summer internship extended to provide ongoing support for experiment.

## LANGUAGE SKILLS

Proficient in Python, R, STATA. Exposure to C++, cluster computing (SLURM), and parallelization.