Graham Tierney
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OVERVIEW

- Statistician interested in causal inference and text data in the context of political polarization.
- Developed novel methodology for simultaneous topic modeling and clustering of Twitter data.
- Prior experience in economics working for Professor Steven Levitt and at Cornerstone Research.

EDUCATION

Duke University – PhD in Statistical Science (Expected 2022)

- Advised by Alexander Volfovsky.
- Study political polarization in the U.S. as a member of the Duke Polarization Lab.

Duke University – MS in Statistical Science (2020)

- Coursework: Bayesian analysis, machine learning, time series.
- Final Project: Topic models for short text and partially supervised LDA.

Carleton College – BA in Mathematics/Statistics and Economics (2014)

- Thesis: "Connecting the Dots: High School Exit Exams and the Labor Market" examined the link between high-stakes high school examinations and labor market outcomes. This project was awarded distinction, the highest honor for a thesis project.
- Coursework: statistics, mathematics, economics, and political science.

NONACADMEIC WORK EXPERIENCE

Student Technical Assistant, MIT Lincoln Laboratory – AI & Algorithms, (Fall 2021-Present)

- Hired to continue implementing counter-misinformation social media experiment designed and piloted during summer internship.

Summer Research Intern, MIT Lincoln Laboratory – AI & Algorithms, (Summer 2021)

- Designed experiment to test counter-misinformation policies on social media.
- Deployed chat-bot technology in simulated social media environment to discourage sharing of false news stories related to COVID-19 vaccines.
- Analyzed disinformation networks related to QAnon to discover influential accounts on Twitter.

Research Professional, University of Chicago, Professor Steven Levitt (2016-2018)

- Assisted Professor Steven Levitt with conducting research and running field experiments.
- Analyzed results of a large, randomized experiment that provided free early childhood education to residents of a south side Chicago neighborhood and discovered significant gains to cognitive abilities.

- Coded analysis using STATA and R. Built a web scraper in Python to collect data on congressional elections.

Analyst, Cornerstone Research (2014-2016)

- Performed statistical analysis for presentation in expert testimony in civil litigation.
- Worked on cases covering: labor market discrimination, anti-trust issues in computer and communications technology, and the financial impact of regulatory investigations.
- Analysis was performed primarily in STATA, SAS, R, and Excel.

PAPERS IN PROGRESS

Tierney, Graham, Chris Bail, and Alexander Volfovsky. "Clustering and Topic Estimation on Short Texts." 2020. https://arxiv.org/abs/2106.09533 (In submission)

Combs, Aidan, **Graham Tierney**, Brian Guay, Friedolin Merhout, Christopher Bail, Sunshine Hillygus, Alexander Volfovsky. "Social Identity and Political Polarization on Social Media: a Field Experiment on a New Chat Platform." (In submission, shared first authorship) Preregistration available at https://osf.io/7xmd8.

Tierney, Graham and Alexander Volfovsky. "Causal Mediation through Text: an Application to Political Polarization." 2021. (In submission)

Tierney, Graham and Alexander Volfovsky. "Simultaneous Bias Estimation and Forecasting in Election Polling." (In progress)

PRESENTATIONS

Tierney, Graham. "Bayes at the Ballot Box: Bias and Forecasting in Election Polling." Presented at 2020. *Bayesian Young Statisticians Meeting* (2020) and *Joint Statistical Meetings* (2021).

ACADEMIC WORK EXPERIENCE

Teaching Assistant, Summer Institute in Computational Social Science (Summer 2020)

- Taught R programing and analysis to help students understand concepts in text analysis.
- Conducted pilot survey with a student research team to study how a politician's gender affects the response to their messaging about the COVID-19 pandemic.

Research Assistant, Statistical and Mathematical Sciences Institute Causal Inference Program, (2019-2020)

- Conduct research with Professor Volfovsky on causal inference methods.
- Developed models for causal mediation in text data. Methods were focused on treatments effects potentially mediated by changes in news consumption.

Teaching Assistant, Duke University (Fall 2018, Fall 2020)

- Head TA for Statistics 111, introductory statistics, and Statistics 440, case studies in statistics.
- Created interactive lab assignments to explore expected earnings by college major and forecast the 2020 presidential election.

AWARDS

Duke Rhodes Information Initiative Data Expedition

- Funded to create a module to introduce undergraduates to text analysis at both introductory and advanced levels.
- Materials developed will be posted for use by others as part of the Duke Information Initiative.

Robert E. Will Memorial Prize

- Awarded to the Carleton College economics major who best exemplifies excellent academic achievement and breadth of intellectual interests.

TECHNICAL SKILLS

- **R**: Monte Carlo posterior sampling methods, data visualization, analysis, and cleaning.
- **Python**: web scraping and data analysis.
- **Stata**: data analysis and cleaning.