Peter Bachman

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Education

Washington University in St. Louis, M.A. Political Science **2021 - 2024**
Emphasis on American Politics and Political Methodology
Relevant Coursework:

- Math Modeling
- R Programming
- Quantitative Political Methodology I & II
- Causal Inference
- Text Analysis

Utah State University, B.A. Political Science **2017 - 2021**
Minors in Japanese and Statistics

Work Experience

Washington University in St. Louis | *Political Science Graduate Student Researcher* **August 2021 - Present**

- Modeled NLP algorithms to analyze the behavior of Supreme Court justices using **R** and **Python**.
- Created data visualizations in **ggplot2** and **matplotlib** to effectively communicate complex political concepts.
- Designed research projects with clear hypotheses and data collection strategies, utilizing both experimental and observational data, and a variety of statistical modeling techniques.

American Political Science Association | *Editorial Assistant* **January 2023 - Present**

- Collaborated with authors to verify and validate replication code in **R**, **Stata**, and **Python**.
- Reviewed manuscripts for technical accuracy and consistency.

Utah State University | *Undergraduate Research Fellow* **May 2020 - October 2020**

- Collected data on state government officials by querying a **SQL** database and cleaning data in **R**.
- Modeled the difference between judges appointed in divided and unified government by employing linear regression models in **R**.

Utah State University | *Advancement Services*: *Data Entry* **2018 - 2021**

- Collected and maintained biographical records of alumni and donations to the university.

Research Experience

Washington University in St. Louis
Supreme Court Justices' Accusations of Judicial Activism in Separate Opinions **2023 - 2024**

- Classified Supreme Court Opinions using machine learning techniques (**LLM** fine-tuning, **XGBoost**) to measure the concept of judicial activism, remedying low classification performance through undersampling and threshold adjustment.

- Employed a two-stage selection model to account for selection bias when representing how justices use judicial activism in separate opinions.
- Coordinated and managed 7 undergraduate students in hand-labeling Supreme Court opinions.

Do Daughters Affect How Judges Interpret Law? **2023**

- Accessed federal circuit court opinion text using **Python** to access the Caselaw Access Project's API.
- Employed a Structural Topic Model to find when judges discussed first-hand accounts in case opinions.
- Utilized causal inference techniques through generalized full matching across judge and case-level characteristics.

Through the Grapevine: Socially Transmitted Information and Distorted Democracy **2023**

- Ensured the validity of results in the book by creating replication code files in **R**.
- Created figures using **ggplot2** to convey the importance of socially transmitted information using survey data.

An Era of Minimal Exposure but Not-So-Minimal Effects? The Case of Fox News **2023**

- Managed a **SQL** database, making queries on a database with over 32 million Twitter posts.
- Complied relevant Comscore and YouGov survey data, along with web tracking data, and SVOD watching history, using **R** and **tidyverse**.
- Created reports using **ggplot2** to represent how survey participants engage in Fox News across multiple data sources.

Improving Measures of Emotion in Judicial Text using Word Embeddings **2023**

- Collected text of Supreme Court opinions by accessing the CourtListener API using **Python**.
- Utilized GLoVe word embeddings to measure how the cosine similarity of words in Supreme Court opinions relates to frequently used sentiment analysis dictionaries.
- Visualized similarities in legal language to positive and negative sentiment dictionaries using **matplotlib**.

Utah State University
The Effect of the Congressional Budget Office on Legislative Behavior **2021 - 2023**

- Converted over 11,000 budget reports from PDF to text files via OCR.
- Extracted relevant costs, deficits, and appropriations, and direct spending across multiple years for each budget report using Large Language Models using a variety of methods, including prompt-engineering and fine-tuning.

Teaching Experience

Washington University in St. Louis | *Python Course Teaching Assistant* **August 2023**

Washington University in St. Louis | *R Course Instructor* **January 2023**

Washington University in St. Louis | *Math Modeling Teaching Assistant* **August 2022 - December 2022**

Skills

- Proficient in R, Python, UNIX/MacOS, git, SQL, C++, Stan, and Java
- Proficient in speaking Japanese