Zhaowen Guo

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SUMMARY

Quantitative social scientist with 5+ years of experience in experimental design, survey analytics, and natural language processing. Skilled in generating actionable insights through dashboards and public reports, securing competitive grants, and communicating findings to diverse audiences.

Skills: Causal inference (experimental design, difference-in-differences), survey methodology (weighting, simulation, item response theory), machine learning (scikit-learn, PyTorch, transformers), natural language processing (LLMs, prompt engineering), data visualization (R Shiny, ggplot2), data engineering (SQL, dbt)

Awards: SSRC Dissertation Grantee, Best Paper Award (PAPOR), First-Place Winner (Green Space Data Challenge), Exceptional Excellence Award (RAISE Data Science Competition)

WORK EXPERIENCE

Better Government Lab, Georgetown University *Sep 2024 – Present*
Data Scientist

- **LLM Evaluation and Prompt Design**: Developed benchmark datasets and structured prompts to evaluate LLM accuracy and policy reasoning in SNAP benefit navigation scenarios. Designed an automated evaluation pipeline using the promptfoo framework to assess LLM consistency, correctness, and robustness across prompt types.
- **Experimental Design and Power Analysis**: Designed and implemented an offline survey experiment to evaluate how LLM suggestions influence caseworker decision accuracy. Conducted simulation-based power analysis in R to assess how varying LLM quality affects performance outcomes [`Code`, `Post`].
- **Survey Analytics**: Analyzed survey data from New York WIC participants and developed vendor accessibility metrics to assess disparities in benefit redemption and administrative burden. Presented findings to WIC program administrators to inform strategies for improving access and service equity [`Presentation`].
- **LLM-Assisted Text Classification**: Applied GPT-4, Claude, and DeepSeek models to classify Reddit posts and open-ended survey responses by benefit stage and emotional tone. Used zero-shot, few-shot, and chain-of-thought prompting, and validated outputs through model comparison and reasoning consistency checks.
- **Data Visualization and Dashboarding**: Built an interactive R Shiny dashboard to visualize SNAP Quality Control error patterns. Designed a user-friendly interface with dynamic filters, hover explanations, and customizable views to support usability testing and stakeholder engagement [`Dashboard`].

University of Washington *Sep 2020 – Aug 2024*
Doctoral Researcher

- **Data Wrangling and Record Linkage**: Built a data processing pipeline in R and PostgreSQL to group individuals into likely households across 10M administrative records from Washington State. Developed scoring logic based on shared identifiers and overlapping time spans to estimate household membership [`Post`].
- **Machine Learning and Natural Language Processing**: Conducted sentiment analysis of AI-related news headlines using a fine-tuned RoBERTa model in PyTorch. Identified key themes with BERTopic and structural topic modeling, and presented findings through engaging visualizations [`Post`, `Visualization`].

EDUCATION

University of Washington *Aug 2024*
Ph.D. in Political Science
Graduate Certificates in Data Science, Psychometrics & Applied Analytics, Computational Social Science

Columbia University *May 2017*
M.A. in Political Science