Zhaowen Guo

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SUMMARY

Data scientist specializing in experimental design, survey analytics, and NLP to evaluate interventions and analyze user behavior. Skilled in causal inference and statistical modeling with a proven record of translating complex data into actionable insights through dashboards and stakeholder reports.

WORK EXPERIENCE

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

- **Behavioral Intervention Evaluation**: Evaluated a reminder message campaign with a civic tech nonprofit to increase SNAP application completion. Used a pre-post pilot to inform A/B test design, identifying a 4% lift in submission rates and supporting recommendations for scaled deployment.
- **Survey Analytics**: Delivered survey design and analysis for NY state agencies and a civic tech nonprofit to identify service gaps in WIC benefit redemption. Applied stratified sampling and calibration weights to produce and present representative findings that informed outreach and vendor access strategies [`Presentation`].
- **Experimental Design**: Designed an offline survey experiment to evaluate how LLM-generated chatbot suggestions influence caseworker decision-making in SNAP application scenarios. Conducted simulation-based power analyses tailored to evolving engineering requirements and research objectives [`Code`, `Post`].
- **User Journey Analysis**: Applied LLMs to classify Reddit posts and open-ended survey responses by user stage and emotional tone. Designed prompting and validation workflows to surface drop-off points and user friction in benefit journeys.
- **LLM Evaluation**: Developed benchmark datasets and structured prompts to evaluate LLM accuracy and explanation quality in SNAP policy scenarios. Built an automated pipeline using `promptfoo` to assess model consistency, correctness, and robustness across prompt variations.
- **Dashboarding**: Built an interactive R Shiny dashboard for government partners to visualize SNAP quality control error patterns. Incorporated stakeholder feedback through usability testing and delivered a tool to support ongoing quality assurance and caseworker training [`Dashboard`].

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

- **Data Wrangling and Record Linkage**: Built a data processing pipeline using R and PostgreSQL to group individuals across 10M administrative records into likely households. Supported state government partners in developing household-level poverty metrics for targeted service delivery [`Post`].
- **Machine Learning and NLP**: Conducted sentiment analysis of AI-related news headlines using a fine-tuned RoBERTa model in PyTorch. Used BERTopic and structural topic modeling to identify public perceptions of AI and shared results through public-facing reports and 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

SKILLS

Causal inference (experimental design, quasi-experimental methods), statistical modeling (GLMs, multilevel models), survey analytics (sampling, weighting), machine learning (scikit-learn, PyTorch, transfomers), NLP (LLMs, prompt engineering), data visualization (R Shiny, ggplot2), data engineering (SQL, dbt)