Zhaowen Guo

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zhaowen-guo

SUMMARY

Data scientist specializing in experimental design, survey analytics, and NLP to evaluate interventions and improve user experiences. Skilled in causal inference and statistical modeling with a proven record of driving product decisions and stakeholder alignment through actionable insights and cross-functional collaboration.

WORK EXPERIENCE

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

Data Scientist

- **Behavioral A/B Testing**: Led design and analysis of a reminder message A/B test with a civic tech partner, identifying a 4% lift in SNAP application submissions and driving product decisions for statewide rollout. Contributed documentation of edge cases, validation checks, and data workflows to support future experimentation.
- **Survey Analytics**: Designed and implemented a statewide survey with New York State agencies to identify gaps in WIC benefit redemption. Applied stratified sampling and calibration weights to generate representative findings that guided outreach and vendor access strategies [`Presentation`].
- **Survey Experiment**: Led end-to-end development and analysis of a survey experiment evaluating how AI-powered chatbot suggestions improve caseworker accuracy in answering client questions. Conducted simulation-based power analyses to optimize experimental design under evolving research constraints [`Code`, `Post`].
- **User Journey Analysis**: Integrated administrative records and survey data to identify drop-off points and user friction, informing strategies to reduce cognitive burden during the post-submission waiting period. Developed LLM-based classification workflows for user stage and emotional tone, automating a previously manual process with over 90% agreement with human coders.
- **LLM Evaluation**: Developed a multiple-choice benchmark and scoring rubric to evaluate chatbot accuracy and explanation quality in SNAP policy scenarios. Leveraged the `promptfoo` framework for automated response scoring and robustness testing across prompt variations.
- **Dashboarding**: Built an interactive R Shiny dashboard to help SNAP auditors explore application error patterns and assess downstream consequences. Incorporated stakeholder feedback through usability testing, delivering a tool used for ongoing quality assurance and caseworker training [`Dashboard`].

University of Washington *Sep 2020 – Aug 2024*

Doctoral Researcher

- **Data Wrangling and Record Linkage**: Built a probabilistic record linkage pipeline using R and PostgreSQL to group individuals across 10M+ administrative records into likely households. Enabled Washington State partners to generate household-level poverty metrics, informing targeted benefit delivery strategies [`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 uncover public perceptions of AI, presenting insights 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 (Qualtrics, sampling, weighting), machine learning (scikit-learn, PyTorch, transfomers), NLP (LLMs, prompt engineering), data visualization (R Shiny, ggplot2), data engineering (SQL, dbt)