Terrence Neumann

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About Me

I'm a PhD student researching responsible AI, focusing on various applications of large language models. My research incorporates machine learning, ethics, human-computer interaction, computational social science, and statistics.

Education

University of Texas at Austin   **Austin, TX**
PhD – Information Systems, Ethical AI Emphasis   *Expected 2026*

Northwestern University   **Evanston, IL**
MS in Analytics   *December 2016*

Indiana University, Bloomington   **Bloomington, IN**
BA in Economics and Mathematics (Departmental Honors)   *May 2015*

Professional & Research Experience

University of Texas at Austin   **Austin, TX**
Research Assistant – Good Systems Initiative   *July 2021 - Present*
- Fine-tuned language model (BERT) and evaluated one-shot learning applications of AI for fact-checking.
- Created a human-annotated benchmark dataset (`TopicMisinfo`) to evaluate LLM judgments related to harms of misinformation.
- Designed and implemented a simulation of a blogging platform (`TACIT`), serving as a valuable test bed for responsible algorithmic misinformation detection. Published at ACM FAccT '23.
- Gathered data and conducted statistical tests revealing that LLMs tend to fail (in five unique ways) at reproducing human opinions related to harms of misinformation. (Publication forthcoming)

Crime and Education Labs, University of Chicago   **Chicago, IL**
Senior Data Scientist   *Jan 2017 – June 2021*
- Developed a predictive model and data pipeline to identify individuals at high risk of experiencing domestic violence, enabling targeted support from specialized social services.
- Utilized education data to construct a predictive model that accurately identifies fourth graders at risk of dropping out before high school graduation to target with additional services.
- Developed novel causal inference technique (`ElasticSynth`) to determine effect of change in policing management on crime levels in Chicago.

Technical Skills

Programming Languages: Python, R

Database Languages: SQL

Machine Learning: PyTorch, xgboost, lightgbm

Natural Language Processing: LLM Evaluation, Amazon Bedrock, Fine-tuning, Few-shot Learning

Crowdsourcing: Mechanical Turk, Prolific

Statistics & Causal Inference: Matching, Synthetic Controls, Bootstrapping & Permutation Tests

Relevant Publications

- **Terrence Neumann**, Maria De-Arteaga, and Sina Fazelpour. *Justice in misinformation detection systems: An analysis of algorithms, stakeholders, and potential harms.* Proceedings of the 2022 ACM Conference on Fairness, Accountability, and Transparency (FAccT). 2022.
- **Terrence Neumann** and Nicholas Wolczynski. *Does AI-Assisted Fact-Checking Disproportionately Benefit Majority Groups Online?* Proceedings of the 2023 ACM Conference on Fairness, Accountability, and Transparency (FAccT). 2023.
- Tanriverdi, Hüseyin, John-Patrick Akinyemi, and **Terrence Neumann**. *Mitigating Bias in Organizational Development and Use of Artificial Intelligence.* Proceedings of the 2023 International Conference on Information Systems (ICIS). (2023).

Working Papers

- **Terrence Neumann**, Maria De-Arteaga, Sina Fazelpour, and Sooyong Lee. *The Risks of Using Large Language Models to Automated Opinion Surveys.* Draft in progress. 2025.
- **Terrence Neumann**, Sooyong Lee, Maria De-Arteaga, Sina Fazelpour, and Matthew Lease. *Diverse, but Divisive. LLMs Can Exaggerate Gender Differences in Opinion Related to Harms of Misinformation. arxiv.* 2024.
- **Terrence Neumann**, Maria De-Arteaga, Sina Fazelpour, Maytal Saar-Tsechansky, and Matthew Lease. *Informational Justice in AI-Assisted Fact-Checking.* SSRN. 2024.
- **Terrence Neumann** and Bryan Jones. *PRISM: A Design Framework for Open-Source Foundation Model Safety. arxiv.* 2024.
- Max Kapustin, **Terrence Neumann**, and Jens Ludwig. Policing and management. No. w29851. National Bureau of Economic Research, 2022.

Fellowship/Awards

Brumley Fellowship in Cybsersecurity. 2023-2024: Investigating the risks associated with open-sourcing advanced AI technologies, like LLMs.

NYU Policing Project Fellow. 2023-2025: Providing data assistance and thought leadership on "Reimagining Public Safety" project, which aims to reduce violent interactions between police and civilians via alternative response.

Chicago Police Department Superintendent's Award of Merit. 2020: Awarded for work assisting Chicago Police Department develop advanced analytics capabilities.

Conference Presentations

Conference on Information Systems and Technology (CIST): 2024

INFORMS Annual Meeting: 2024

INFORMS Data Science Workshop: 2024

ACM Conference of Fairness Accountability and Transparency (FAccT): 2022, 2023

Service

AAAI/ACM Conference on AI, Ethics, and Society: 2024 - Program Committee

Conference on Information Systems and Technologies (CIST): 2024 - Reviewer

INFORMS Data Science Workshop: 2024 - Reviewer

Workshop on Information Technologies and Systems (WITS): 2021 - Conference Volunteer