

# Terrence Neumann

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## About Me

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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

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### University of Texas at Austin

*PhD – Information Systems, Ethical AI Emphasis*

**Austin, TX**

*Expected 2026*

### Northwestern University

*MS in Analytics*

**Evanston, IL**

*December 2016*

### Indiana University, Bloomington

*BA in Economics and Mathematics (Departmental Honors)*

**Bloomington, IN**

*May 2015*

## Professional & Research Experience

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### SnorkelAI

*Expert Contributor - Statistical and Logical Reasoning*

**Redwood City, CA**

*January 2025 - present*

- Create complex prompts that require advanced reasoning capable of stumping advanced large language models.
- Provide “reasoning trace” so future LLMs learn necessary reasoning steps to solve complex problems.

### University of Texas at Austin

*Research Assistant – Good Systems Initiative*

**Austin, TX**

*July 2021 - Present*

- Created a crowdsourced benchmark dataset (TopicMisinfo) that assess 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

*Senior Data Scientist*

**Chicago, IL**

*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

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**Programming Languages:** Python, R

**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

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- **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

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- **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

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**Brumley Fellowship in Cybersecurity. 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

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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

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ACM WWW (The Web Conference): 2025 - Reviewer

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