

Siyi Liu

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Research Interests

My research spans natural language processing and broader artificial intelligence. Recently, I'm particularly interested in studying different types of **conflicts** that emerge in modern AI systems, including **hallucinations and factuality** (generations conflicting with contexts/facts), **knowledge conflicts** (reasoning across conflicts among contexts or between contextual and parametric knowledge), and also **perspectives** (conflicts among different sources of perspectives).

Education

University of Pennsylvania , Philadelphia, PA Ph.D. in Computer and Information Science Advisor: Dan Roth	Fall 2022 - Present
University of Pennsylvania , Philadelphia, PA M.S.E. in Computer and Information Science	Fall 2020 - May 2022
Boston University , Boston, MA B.A./M.S. Dual Degree in Computer Science	Fall 2016 - May 2020

Publications

- [1] **Siyi Liu**, Aaron Halfaker, Dan Roth, Patrick Xia
“ConflictScore: Measuring How Language Models Handle Conflicting Evidence” [Paper]
in submission
- [2] Xingyu Fu, **Siyi Liu**, et al.
“Learning Human-Perceived Fakeness in AI-Generated Videos via Multimodal LLMs”
Neurips 2025 GenPro CC and NextVid workshop [Paper]
- [3] **Siyi Liu**, Dan Roth
“Conflicts in Texts: Data, Implications and Challenges”. EMNLP 2025 Findings [Paper]
- [4] **Siyi Liu**, Kishaloy Halder, et al.
“Towards Long Context Hallucination Detection”. NAACL 2025 Findings [Paper]
- [5] **Siyi Liu**, Qiang Ning, et al.
“Open Domain Question Answering with Conflicting Contexts”. NAACL 2025 Findings.
[Paper]
- [6] Nishanth Nakshatri, **Siyi Liu**, Sihao Chen, Daniel Hopkins, Dan Roth, Dan Goldwasser
“Using LLM for improving key event discovery: Temporal-guided news stream clustering with event summaries”. in Findings of EMNLP 2023 [Paper]
- [7] **Siyi Liu**, Hongming Zhang, Hongwei Wang, Kaiqiang Song, Dan Roth, Dong Yu
“Open-Domain Event Graph Induction for Mitigating Framing Bias”. 2023. [Paper]

[8] Sihao Chen*, **Siyi Liu***, Xander Uyttendaele, Yi Zhang, William Bruno, Dan Roth
“Design Challenges for a Multi-Perspective Search Engine”. in Findings of NAACL 2022
[\[Paper\]](#)[\[Demo\]](#)

[9] Anietie Andy, **Siyi Liu**, Daphne Ippolito, Reno Kriz, Chris Callison-Burch, Derry Wijaya
“Creating Multimedia Summaries Using Tweets and Videos”, 2022. [\[arxiv\]](#)

[10] **Siyi Liu**, Sihao Chen, Xander Uyttendaele, Dan Roth
“MultiOpEd: A Corpus of Multi-Perspective News Editorials”, in NAACL 2021.
[\[Paper\]](#)[\[Slides/Talk/Poster\]](#)

[11] **Siyi Liu***, Ziang Leng*, Derry Tanti Wijaya.
“Learning To Mirror Speaking Styles Incrementally.” 2020. [arxiv](#)

[12] **Siyi Liu**, Lei Guo, Kate Mays, Margrit Betke and Derry Tanti Wijaya.
“Detecting Frames in News Headlines and Its Application to Analyzing News Framing Trends Surrounding U.S. Gun Violence.” In *Proceedings of Conference on Computational Natural Language Learning (CoNLL)* 2019.
[\[Paper\]](#) [\[Slides\]](#)

Industrial Experience

Microsoft , Redmond, Washington <i>Title: Research Intern</i> <i>Host: Patrick Xia, Aaron Halfaker</i> <i>Project: ConflictScore: Measuring How Language Models Handle Conflicting Evidence</i> <i>Keywords: Conflicts, Retrieval-augmented Generation, LLMs</i>	Summer 2025
AWS AI Labs , NYC, New York <i>Title: Applied Scientist Intern</i> <i>Host: Kishaloy Halder</i> <i>Project: Long Context Hallucination Detection</i> <i>Keywords: Hallucination Detection, Long Context, LLMs</i>	Summer 2024
AWS AI Labs , NYC, New York <i>Title: Applied Scientist Intern</i> <i>Host: Qiang Ning</i> <i>Project: Open Domain Question Answering with Conflicting Contexts</i> <i>Keywords: Retrieval Augmented Generation (RAG), Conflicting Contexts, LLMs</i>	Summer 2023
Tencent AI Labs , Bellevue, WA <i>Title: Applied Scientist Intern</i> <i>Host: Hongming Zhang</i> <i>Project: Open Domain Neutral Event Graph Induction</i> <i>Keywords: Framing Bias, Event Graph Induction</i>	Summer 2022

A Multi-Perspective Search Engine

We build a system that presents search results in clusters of perspectives using Google Search API. Empirically, 63% of the participants in our survey prefer our system's organization to naive Google Search's given the same search results and UI. [\[Demo\]](#)

Funded Projects

University of Pennsylvania

Fall 2022 – Present

Advisor: Prof. Dan Roth

Project: Human Interpretable Attribution of Text Using Underlying Structure (HIATUS)

- *This project is funded by Intelligence Advanced Research Projects Activity (IARPA) via 2022-22072200003 and is led by Raytheon BBN Technologies*
- *Develop explainable systems to identify authorship through linguistic representations of texts*

University of Pennsylvania

Summer 2020 – Present

Advisor: Prof. Dan Roth

Project: Information Pollution Project

- *This project is funded by NSF award IIS-2135573*
- *A dataset with hierarchical structure of query, perspectives, evidence, article*
- *Study and analyze the argumentation structure of news articles*
- *Develop a demo website that searches in real time in a perspective-oriented manner*
- *Using LLMs to discover key events in news*

Boston University

Spring 2019 – Fall 2020

Advisor: Prof. Derry Wijaya

Projects:

- *This project is funded by NSF grant 1838193.*
- *Detect frames in news headlines and analyze news framing trends surrounding U.S. gun violence*
- *Capture and transform speaking styles in a low resource setting*
- *Create multimedia summaries using tweets and videos*