

Zoher Kachwala

Curriculum Vitae

Education

- May 2025 **PhD in Computer Science**, *Indiana University, USA*
CGPA: 3.7/4.0
- May 2022 **MS in Data Science**, *Indiana University, USA*
- May 2019 **MS in Computer Science**, *Indiana University, USA*

Research Interests

I am interested in improving the reasoning abilities of Language and Vision Models, especially for tasks like fact-checking. My focus is on developing generalizable test-time interventions that are easy to apply and adapt to new problems with minimal effort, for both experts and non-experts.

Publications

- Oct 2024- **Adaptive Sampling Improves Self-consistent Chain-of-thought Reasoning of LLMs**, *In progress*
Sampling multiple Chains-of-thought by using adaptive noise that encourages diversity in the beginning and confidence at the end to improve reasoning by Large Language Models
- Oct 2024- **Self-consistency with Chain-of-thought Can Improve Social Media Moderation by LLMs**, *In progress*
Sampling multiple Chains-of-thought to improve auto-moderation of social media communities on Reddit and Mastodon by Large Language Models.
- Sep 2024- **Self-consistency with Chain-of-thought Can Improve Detection of AI-Images by VLLMs**, *In progress*
Sampling multiple Chains-of-thought to improve detection of AI-generated images by a Vision Large Language Models.
- Apr 2024- **Increasing Facts Improves Chain-of-thought Reasoning of LLMs**, *In progress*
Developing Chain-of-thought prompts that include more facts to improve reasoning of Large Language Models.
- 2023 **REMATCH: Robust and Efficient Knowledge Graph Matching**, *NAACL 2024*
A metric that balances structural similarity of AMRs with the semantic similarity of source text, while being five times more efficient.
- 2023 **A Multi-Platform Collection of Social Media Posts about the 2022 U.S. Midterm Elections**, *ICWSM 2023*
Collected social media posts from multiple platforms (Twitter, Facebook, Instagram, Reddit, 4chan).
- 2023 **The Inexplicable Efficacy of Language Models**, *XRDS: Crossroads, ACM Magazine*
A brief insight into the development and rise of language modeling.

Research Projects

- Jan **Text2Graph**
- 2019-May
2023 Developed a tool that uses semantic role labeling to create pseudo-AMRs from text.

- May* **Review of Attention Models**
- 2021-Aug* Explored transformer-based language models (BERT, GPT) and their applications, securing passage of
2021 doctoral candidacy exam.
- Oct* **DARPA INCAS Team**
- 2021-May* Developed tools for DARPA INCAS to prevent malicious influence campaigns online.
2021

Teaching Experience

- Fall 2022,* **Introduction to Network Science, Indiana University**
- Fall 2023,* Developed and conducted coding-based network science tutorials to reinforce theoretical concepts.
Fall 2024
- Fall 2019,* **Elements of Artificial Intelligence, Indiana University**
- Spring 2021,* Built a pytest autograder for the popular AI course, grading homework for over 300 students.
Fall 2021
- Fall 2020* **Applied Machine Learning, Indiana University**
 Assisted with course instruction and helped students with hands-on machine learning assignments.

Internships

- Summer 2018* **Technology Consultant, PricewaterhouseCoopers**
 Worked on technology consultancy projects, providing recommendations on systems integration and IT management.

Service

- Peer* *Peerj Computer Science*
- Reviewer*
- Harvard* Represented India and NMIMS at the "Olympics of Model UN" with 2000+ participants from
WorldMUN 110 countries.
- Graduate* Representative of the Computer Science department at Indiana University.
Government
- Ambassador* Coordinated visits for prospective students and assisted in their integration into university life.

Technical Skills

- Programming* Python, Bash, C++, R
- Languages*
- Libraries &* NumPy, SciKit, ScaPy, Pandas, NetworkX, PyTorch, Tensorflow, Neo4J, MySql
Tools
- Frameworks* Knowledge Graph Mining, Transformer Models, Fact-checking, Markov Models

Hobbies

- Interests* Liverpool Football Club, Cooking, Baking, Resistance Training, Board Games, Operas, Orchestras, Theatre, Hiking, Galleries.