

Zoher Kachwala

zoher.kachwala@gmail.com
zkachwal@iu.edu
[GitHub](#) [LinkedIn](#) [Homepage](#)

Research Interest

I am passionate about bridging the gap between language understanding and structured knowledge. I am particularly intrigued by the potential of structural representations to ground Large Language Models (LLMs) for trust-sensitive reasoning applications like fact-checking and question answering. My current research focuses on developing prompts using knowledge graphs to improve multi-hop reasoning of LLMs.

Papers and Articles

Knowledge Graph Prompting Improves Multi-Hop Reasoning Jan 2024-Ongoing

Prompting LLMs to structures queries and context to knowledge graphs to improve multi-hop question answering and fact-checking

REMATCH: Robust and Efficient Knowledge Graph Matching for Improved Structural and Semantic Similarity Jan 2023-Dec 2023

NAACL 24

A metric that balances structural similarity of AMRs with the semantic similarity of source text, while being five times more efficient

A Multi-Platform Collection of Social Media Posts about the 2022 U.S. Midterm Elections Aug 2022-May 2023

ICWSM 2023

A collection of social media posts from Twitter, Facebook, Instagram, Reddit, and 4chan

The Inexplicable Efficacy of Language Models Nov 202-Jan 2023

XRDS: Crossroads, The ACM Magazine for Students

A brief insight into the development and rise of Language Modeling

Research Projects

Text2Graph Jan 2019-May 2023

Developed a tool that uses semantic role labeling to create pseudo-AMRs from text

Review of Attention Models May 2021-Aug 2021

Deep dive into transformer-based language models (BERT, GPT) secured passage of doctoral candidacy exam

DARPA INCAS Team Oct 2021-May 2021

Part of a team developing tools for DARPA INCAS to prevent malicious influence campaigns online.

Teaching

Introduction to Network Science Fall 2022, Fall 2023, Fall 2024

Developed and conducted coding-based network science tutorials using programming to reinforce theoretical concepts in class.

Elements of Artificial Intelligence Fall 2019, Spring 2021, Fall 2021

The most popular graduate course at our university that dives deep into AI, from search algorithms to neural nets. To grade the homeworks of 300 students, I built a pytest autograder

Applied Machine Learning Fall 2020

Class Projects

Generative Models for MNIST Digit Images Fall 2020

Leveraged deep learning (GANs, RNNs, VAEs) to generate user-queried digits, impute missing data, and represent irregular patterns in MNIST images

Speech Denoising and Speaker Verification Fall 2020

Applied deep learning (FCNs, CNNs, RNNs) for speech denoising and speaker verification (Siamese Nets, 74% accuracy)

Part-of-Speech Tagging Fall 2017

Our n-gram-based POS tagger achieved 95.38% accuracy and 7.826ms/sentence runtime on a dataset of 50k sentences, ranking 2nd among 50 teams in a competition

Education

Indiana University, USA

CGPA 3.62

PhD in CS May 2025

MS in Data Science May 2022

MS in CS May 2019

NMIMS Mumbai, India

First Class

B.Tech CE May 2017

Technical Familiarity

Python, Bash, NumPy, SciKit, ScaPy, Pandas, NetworkX, PyTorch, Tensorflow, Neo4J, MySQL, R, C++.

Research Familiarity

Attention Models, Transformer Architecture, Knowledge Graph Mining and Construction, Multi-hop Fact-checking, Graph Search, Markov Models, Linear and Logistic Regression, Clustering Techniques, Ensemble Learning, Word2Vec, Transformers, Gender and Computerization

Internships

PricewaterhouseCoopers

Technology Consultant
Summer 2018

Service

PeerJ Computer Science

Peer Reviewer

Harvard WorldMUN

Represented India and NMIMS at 'olympics of Model UN' with 2000+ participants from 110 countries

Graduate Government IU

Representative of the Computer Science department

Luddy Ambassador IU

Coordinated visits for prospective students and help them settle at IU

Hobbies

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