

Tianhui Zhang

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Summary

A Computer Science PhD candidate at the University of Liverpool with a strong background in Natural Language Processing, Retrieval Augmentation, and Knowledge Graphs. Experienced in developing NLP models for commonsense generation and leveraging large language models. Seeking a research or software engineering internship to apply my skills in building innovative AI-powered solutions.

Education

University of Liverpool	Jun. 2022 – Present
<i>PhD Computer Science</i>	<i>Liverpool, United Kingdom</i>
University College London	Sep. 2019 – Dec. 2020
<i>MSc Data Science and Machine Learning</i>	<i>London, United Kingdom</i>
University of Liverpool	Sep. 2017 – Jun. 2019
<i>BSc Artificial Intelligence</i>	<i>Liverpool, United Kingdom</i>
Xi'an Jiaotong-Liverpool University	Sep. 2015 – Jun. 2017
<i>BSc Information and Computer Science</i>	<i>Suzhou, China</i>

Skills

Research Areas: Retrieval-Augmented Generation (RAG), Commonsense Reasoning, Knowledge Graphs, Large Language Models (LLMs), Text Generation Diversification
Programming & Tech: Python (Proficient), PyTorch, Transformers, Git, SQL
Databases: Neo4j (Graph Database), MySQL

Professional Experience

Knowledge Graph Intern	Mar. 2022 – Sep. 2022
<i>Institute of Intelligent Computing Technology</i>	<i>Suzhou, China</i>
<ul style="list-style-type: none">Engineered and maintained a large-scale financial knowledge graph, integrating data from multiple sources to support downstream financial analysis applications.Developed and documented APIs to provide knowledge graph query services, improving data accessibility for other teams.Enhanced a proprietary language model by integrating the knowledge base, which improved the model's factual accuracy in financial Q&A tasks by 15%.	
Software Engineer Intern	Jun. 2017 – Sep. 2017
<i>RISE English School</i>	<i>Suzhou, China</i>
<ul style="list-style-type: none">Developed a comprehensive student management system from scratch using Java and MySQL, serving over 500 students.Implemented features for automatic tracking of course progress and tuition payment reminders, reducing manual administrative work by 30%.	

Research Experience

Knowledge graph applied BERT and open IE	Jun. 2020 – Sep. 2020
<i>University College London</i>	<i>London, United Kingdom</i>
<ul style="list-style-type: none">Designed and implemented a novel Open Information Extraction (Open IE) system using BERT to automatically extract relational triples from unstructured text.Constructed a domain-specific knowledge graph by processing over 10,000 documents from Wikipedia and SEC filings.	
Meta-embedding	Jan. 2019 – Aug. 2019
<i>University of Liverpool</i>	<i>Liverpool, United Kingdom</i>
<ul style="list-style-type: none">Investigated the issue of negative transfer in word embedding ensembles under the supervision of Prof. Danushka Bollegala.Conducted experiments on multiple NLP datasets, proposing a new method that improved performance on downstream tasks like sentiment analysis.	

Publications

Learning to Predict Concept Ordering for Common Sense Generation. Tianhui Zhang, Danushka Bollegala and Bei Peng, *IJCNLP-AACL*, 2023

Improving Diversity of Commonsense Generation by Large Language Models via In-Context Learning. Tianhui Zhang, Bei Peng and Danushka Bollegala, *EMNLP*, 2024

Evaluating the Evaluation of Diversity in Commonsense Generation. Tianhui Zhang, Bei Peng and Danushka Bollegala, *ACL*, 2025

BRIGHTER: BRIdging the Gap in Human-Annotated Textual Emotion Recognition Datasets for 28 Languages. Shamsuddeen Hassan Muhammad et al., *ACL*, 2025 (Best Resource Paper)

Evaluating the Effect of Retrieval Augmentation on Social Biases. Tianhui Zhang, Yi Zhou and Danushka Bollegala, 2025 (*EACL*, 2026)

Awards & Honors

The University of Liverpool Graduate Association Scholarship <i>The University of Liverpool</i>	2024
Departmental Top 5% Scholarship <i>Xi'an Jiaotong-Liverpool University</i>	2016

Teaching and Reviewing

Conference Reviewer: ACL (2024-Present), NSG (2024), COLING (2025)

Teaching Assistant:

- COMP518 Database and Information Systems (2023/2024)
- COMP521 Knowledge Representation (2022-2025)
- COMP304 Knowledge Representation and Reasoning (2022-2025)
- COMP559 Algorithmic Game Theory (2022/2023)
- COMP527 Data Mining and Visualisation (2022/2023)
- COMP109 Foundations of Computer Science (2022/2023)