

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

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)