Bohui Zhang

Contact Information

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https://bohuizhang.github.io/

Research Interests

My research interests mainly lie in knowledge graphs, natural language processing, and explainable AI, especially on automatic and explainable knowledge graph construction and natural language processing in knowledge graph construction, especially the usage of prompt engineering and retrieval-augmented generation.

Academic Background

King's College London (KCL) 2022 - 2026
Ph.D. in Computer Science
Supervisors: Prof. Elena Simperl, Dr. Albert Meroño Peñuela

University of Southern California (USC) 2020 - 2021
M.S. in Applied Data Science

University of Waterloo (UWaterloo) 2015 - 2019
B.S. in Materials and Nanosciences, *Dean's Honours List*

Beijing Jiaotong University (BJTU) 2015 - 2019
B.Eng. in Nanomaterials and Nanotechnology

Work Experience

Information Sciences Institute, Student Researcher 09/2021 - 12/2021

- Supervisor: Dr. Filip Ilievski
- Investigated the feasibility of enriching Wikidata with structured data sources from the linked open data (LOD) cloud.
- Proposed a method that consists of several steps: gap detection, external graph selection, schema alignment, knowledge retrieval, and validation, implemented the procedure using the Knowledge Graph Toolkit (KGTK).
- Evaluated the method on enriching Wikidata with two LOD sources: DBpedia and Getty Vocabularies. The experiments showed that the LOD-based method can enrich Wikidata with millions of new high-quality statements in a short time.

Alibaba Cloud, Machine Learning Intern 05/2021 - 08/2021

- Mentor: Jingjun (Alvin) Chu
- Worked on a Neural Architecture Search (NAS) system for optimizing models in search space defined by ProxylessNAS, used on image classification and feature extraction tasks based on dataset collecting from group's retail sector.
- Improved the model training process using knowledge distillation and improved the optimal model architecture searching process in various hardware environments using policy gradient algorithm based on target accuracy, FLOPs and latency.
- The optimal models deployed on terminal machines achieved model compression for more than 60% decrease on FLOPs while improving rank1 and rank6 compared with state-of-the-art MobileNetV2 models and keeping the top1 accuracy above 98%.

Publications [8]

7. Bohui Zhang, Elisavet Koutsiana, Yihang Zhao, Albert Meroño-Peñuela, and Elena Simperl, Trustworthy Knowledge Graphs: Practices and Approaches. *Handbook on Neurosymbolic AI and Knowledge Graphs.* IOS Press, 2025. 363-384.
6. Elisavet Koutsiana, Johanna Walker, Michelle Nwachukwu, Bohui Zhang, Albert Meroño-Peñuela, Elena Simperl, Knowledge Prompting: How Knowledge Engineers Use Generative AI, Under Review, 2025
5. Bohui Zhang, Albert Meroño-Peñuela, and Elena Simperl, Towards Explainable Automated Knowledge Engineering with Human-in-the-loop, Under Review, 2024
4. Bohui Zhang, Valentina Anita Carriero, Katrin Schreiberhuber, Stefani Tsaneva, Lucía Sánchez González, Jongmo Kim, Jacopo de Berardinis, OntoChat: a Framework for Conversational Ontology Engineering using Language Models, In *Extended Semantic Web Conference*, 2024
3. Bohui Zhang, Ioannis Reklos, Nitisha Jain, Albert Meroño Peñuela, Elena Simperl, Using Large Language Models for Knowledge Engineering (LLMKE): A Case Study on Wikidata, In *Knowledge Base Construction from Pre-trained Language Models Workshop at International Semantic Web Conference*, 2023
2. Bohui Zhang, Albert Meroño Peñuela, Elena Simperl, Towards Explainable Automatic Knowledge Graph Construction with Human-in-the-loop, In *International Conference on Hybrid Human-Artificial Intelligence* (HHAI), 2023
1. Bohui Zhang, Filip Ilievski, Pedro Szekely, Enriching Wikidata with Linked Open Data, In *Wikidata Workshop co-located with International Semantic Web Conference*, 2022

Teaching Assistant

5CCSAKNE Knowledge Engineering — KCL

- Module leader: Dr. Albert Meroño Peñuela, Prof. Elena Simperl
- Developed course materials, including lectures and lab sheets, on knowledge graphs, knowledge engineering, and large language models; led lab sessions.
- Semesters: 2024-25 Semester 2

7CUSMNDA Network Data Analysis — KCL

- Module leader: Dr. Albert Meroño Peñuela
- Designed and delivered coding lab sessions, topics covered included graph theory, spatial and social network analysis, graph embedding, and semantic web.
- Semesters: 2022-23 Semester 2, 2023-24 Semester 2, 2024-25 Semester 2

5CCS2FC2 Foundations of Computing II — KCL

- Module leader: Dr. Christopher Hampson
- Delivered lab sessions on algorithm problems, topics covered included P/NP, SAT solving, approximation, linear programming, and probabilistic algorithms.
- Semesters: 2022-23 Semester 1

Awards

NMES Enterprise & Engagement Partnerships Fund	KCL, 2023
Graduation Dean's Honours List	UWaterloo, 2019
Waterloo-Beijing Jiaotong University Tuition Award	BJTU, 2016, 2017, 2018
Excellence Scholarship of Academic Activities	BJTU, 2017 - 2018
Excellence Scholarship of Social Activities	BJTU, 2015 - 2016

Academic Service	**Organizer** for ELMKE Workshop series, LM-KBC Challenge series, Knowledge Prompting Hackathon 2023. **Reviewer** for ACM CHI 2023. **Member** of Knowledge Graphs Interest Group at the Alan Turing Institute.
Skills	**Languages:** Python, Java, JavaScript, MATLAB **Frameworks:** `PyTorch`, `transformers`, `KGTK` **Semantic Web Tech Stacks:** OWL, RDF, LOD, SPARQL, PROV **Databases:** MongoDB, MySQL, Neo4j