

Knowledge Representation Workshop 8

CITS3005

October 11, 2023

Applications of Knowledge Graphs and Ontologies

This workshop will discuss the potential applications for knowledge graphs, ontologies and formal deduction in modern AI systems.

Consider the following articles and consider how structured knowledge is, or can be, integrated into everyday applications:

- Using DBPedia for sporting knowledge:
<https://johnbeverley-com.cdn.ampproject.org/c/s/johnbeverley.com/blogic/2023/9/4/the-importance-of-interoperability-in-ontology-case-study-on-dbpedia?format=amp>
<https://johnbeverley-com.cdn.ampproject.org/c/s/johnbeverley.com/blogic/2023/9/4/the-importance-of-format=amp>
- Learning Ontologies:
<https://medium.com/@yuanhe.cs.ai/revolutionising-ontology-engineering-with-deep-learning-an-introduction-to-deeponto-3c42e6e6b9dd>
<https://medium.com/@yuanhe.cs.ai/revolutionising-ontology-engineering-with-deep-learning-an-intro>
- Question Answering Systems:
<https://medium.com/@D063520/question-answering-over-wikidata-4f7bda802abb>
<https://medium.com/@D063520/question-answering-over-wikidata-4f7bda802abb>
- Integrating Chatbots with knowledge graphs:
<https://neo4j.com/developer-blog/knowledge-graph-based-chatbot-with-gpt-3-and-neo4j/>
<https://neo4j.com/developer-blog/knowledge-graph-based-chatbot-with-gpt-3-and-neo4j/>
- Recommender Systems:
<https://blogs.sw.siemens.com/art-of-the-possible/2023/10/09/lisas-journey-embracing-simcenter-amesim-recommender-as-a-new-simulation-engineer/>
<https://blogs.sw.siemens.com/art-of-the-possible/2023/10/09/lisas-journey-embracing-simcenter-amesim-recommender-as-a-new-simulation-engineer/>

Consider the following questions:

1. How reliable is the knowledge in these application, and how reliable does it need to be?
2. What kind of deduction and inference can these systems perform, and is it useful.
3. Is the standardisation of knowledge as or more important than the standardisation of reasoning.
4. What standard of trust should we have in these systems, and how can we quantify trust?