Call for Bachelor Thesis

FIZ Karlsruhe
Leibniz Institute for Information Infrastructure

Fine-grained Type Prediction of Entities using KG embeddings

Are you interested in making a big impact with your thesis? Work with us on an innovative approach for predicting Types of entities in a KG e.g. DBpedia.

Open Knowledge Bases such as DBpedia[1], Wikidata[2] have been recognized as the foundations for diverse applications in the field of data mining and information retrieval. Most of these KBs are created either via automated information extraction from Wikipedia snapshots, information accumulation provided by the users or by using heuristics. However, each KB follows a different knowledge organization and is based on differently structured ontologies. Moreover, it has been observed that type information is often noisy, incomplete or even incorrect. In general, there is a need for well defined and comparable type information for the entities of the KBs.

In this thesis, your focus will be to **predict Type information for DBpedia entities** using the KG embeddings. There are a lot of entities in DBpedia which are not assigned to the fine grained type information, rather assigned to either coarse grained type information or to the rdf:type owl:Thing. Therefore, this infobox type prediction approach will eventually help in various question answering applications and NLP related problems such as Named Entity Recognition etc.

The aim of this thesis is to explore the supervised approaches such as CNN classification as well as the unsupervised approaches such as vector similarity using the KG embeddings to predict the fine grained type information of the entities. For KG embeddings, already available pre-trained models could be used.

This thesis will be supervised by **Prof. Dr. Harald Sack, Information Service Engineering at Institute AIFB, KIT, in collaboration with FIZ Karlsruhe**.

[1] http://wiki.dbpedia.org/
[2] https://www.wikidata.org/wiki/Wikidata:Main_Page

Which prerequisites should you have?
- Good programming skills in Python or Java
- Interest in Deep Learning technologies
- Interest in Machine Learning approaches
- Interest in Semantic Web technologies

DBpedia

Contact person:
Russa Biswas
russa.biswas@kit.edu
russa.biswas@fiz-karlsruhe.de

aifb

Institute of
Applied Informatics and
Formal Description Methods
http://www.aifb.kit.edu/

KIT
Karlsruhe Institute of Technology