Call for Master Thesis

FIZ Karlsruhe
Leibniz Institute for Information Infrastructure

Knowledge Graph Based Semantic Web Page Tagging

Dedicated Knowledge Graphs (KG) can be utilized to represent the structure of a company relating it to various domains, tasks, and processes. A KG might provide information about the different departments of an organisation, their tasks and responsibilities, as well as topics and domains taken care of by them. Companies and organisations might use their particular knowledge organisation schemes which can be mapped to the company KG and combined with existing general or domain specific KGs. In combination with encyclopaedic KGs, such as Wikidata [1] or DBpedia [2], these dedicated KGs can serve as a basis for semantic search and exploration of information resources such as company web pages. To that end web pages might be annotated with KG entities (semantic tags), whose relations amongst each other can be utilized to improve standard retrieval technology.

The goal of this master thesis is to develop an application for the recommendation of semantic tags for company Web Pages based on a specific dedicated knowledge graph on the example of the FIZ Karlsruhe Leibniz Institute for Information Infrastructure [3].

To achieve this goal (1) a dedicated FIZ ontology and FIZ Knowledge Graph have to be developed and implemented, (2) a recommender system for semantic tags, i.e. entities of the FIZ knowledge graph, based on the content of a specific Web page has to be developed and implemented. Finally, (3) the Web Pages should be complemented with according RDFa [4] annotation representing the chosen semantic tags.

The master thesis work can be connected with a student work contract (HiWi) at FIZ Karlsruhe.

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

Which prerequisites should you have?
* Knowledge in Semantic Web technologies and Linked Data Good programming skills preferably in Python or Java
* Familiarity or Interest in the Drupal Content Management System [5]
* Interest in Recommender Systems

[1] https://www.wikidata.org/
[2] https://wiki.dbpedia.org/about
[3] https://www.fiz-karlsruhe.de/
[4] https://rdfa.info/
[5] https://www.drupal.org/

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