



## Topic for Bachelor's / Master's Thesis

In the department of computer science / research group of database and information systems, we offer the following topic for a bachelor's / master's thesis:

### Evaluation of Open-Domain Knowledge Bases for Semantic Service Matching

#### Motivation

Automatic service discovery envisions the idea to find reusable web services that conform to a certain service request describing the desired properties of the web service. This technique requires semantic specifications of services and requests which form the basis of a service matching. Part of the semantic specification is an ontology that describes the entities and relations of a domain such as flight booking, maps, or music services.

However, matching requests and services across domains using heterogeneous ontologies is a major challenge and often results in a bad matching quality. To overcome this problem, we envision the usage of a large-scale, open-domain ontology as provided by the knowledge bases DBpedia, Wikidata, Yago, schema.org or ConceptNet. In this thesis, the suitability of these open-domain knowledge bases is to be evaluated for semantic service matching

#### Description of the Task

- Select some typical web services from different domains and describe each of them in the ontologies of different knowledge bases (more web services and knowledge bases for master's thesis)
- Use existing service matchers to perform the service matching based on those ontologies
- Compare the quality of the service matching depending on the ontology and its properties
- Derive requirements on knowledge bases for semantic service matching
- Investigate which knowledge base best fulfills those requirements

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