

Ontology Development for Sports Data with the MO|RE Repository

Interdisciplinary topic co-supervised by KIT IfSS (Institute for Sports and Sports Research)



Tasks:

1. Define the ontology scope and formulate competency questions (CQs) together with domain experts.
2. Review existing ontologies and identify reusable concepts and ontology design patterns.
3. Design and implement the ontology using the Ontology Development Kit (ODK) [5]
4. Evaluate the ontology using the defined competency questions and expert feedback.

Sources:

- [1] <https://www.motor-research-data.de/>
- [2] <https://www.ifss.kit.edu/more/english/index.php>
- [3] <https://bfo-ontology.github.io/>
- [4] Gangemi, Aldo, and Valentina Presutti. "Ontology design patterns." *Handbook on ontologies*. Berlin, Heidelberg: Springer Berlin Heidelberg, 2009. 221-243.
- [4] ODK: <https://github.com/INCATools/ontology-development-kit>

In collaboration with domain experts from the KIT IfSS team, the goal of this thesis is to develop a domain ontology for the **MO|RE repository** [1,2], which captures sports science motor skills research data, and align it with the **Basic Formal Ontology (BFO)** [3]. The resulting ontology will provide a semantic representation of sports science motor skills research data and serve as a basis for future knowledge graph applications.

Central to this topic is designing and implementing a domain ontology that accurately captures core concepts, relationships, and contextual metadata related to sports science tests, test results, and related contextual factors.

The thesis will include different steps of the ontology development process, such as expert interviews and the definition of competency questions, exploring existing **ontology design patterns (ODPs)** [4], formalizing and implementing a first version of the ontology, and evaluation.

Supervision

This thesis will be supervised by Prof. Dr. Harald Sack, M.A. Oleksandra Bruns, Dr. Jörg Waitelonis, Dr. Anna Jacyszyn, Information Service Engineering at Institute AIFB, KIT, in collaboration with FIZ Karlsruhe, and Dr. Katja Keller, Dr. Claudia Niessner, IfSS, KIT.

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