Bachelor-Thesis / Master-Thesis:

Smart Building Domain Vocabulary Similarity Calculation applying Artificial Intelligence Approach

Context:

Nowadays, individual devices and functional units will generate thousands of TB data annually and building-related systems must handle millions of TB data. Next generation building management systems will be processing amounts of heterogeneous data. Despite a number of architectures and underlying technological implementations of big data solutions for buildings’ energy management have been emerged, the lack of semantic interoperability across data streams. Semantic metadata standards present a promising path to enabling interoperability by offering uniform descriptions of building resources to application developers and building operators. Several standardization efforts have arisen to address the ad-hoc nature of building metadata. Of these, Brick and Saref have seen adoption and investment from academic and industrial sources. But there are still methods required to automatic mapping the raw data to the common data model. Therefore, different artificial intelligence approaches are under research, which aims to accelerate the mapping process and reduces manual work.

Tasks:

- Literature review of the state of the art method in vocabulary similarity calculation
- Compare the standard vocabulary similarity calculation method
- Implementation of vocabulary similarity calculation function and develop a optimal data mapping pipeline
- Evaluate this method with raw data in smart building domain

Your Profile:

- Electrical engineering / computer science or any related field
- Good programming skill and experience in Python
- Knowledge about data model, natural language processing, Ontology are an advantage
- Interest in learning and testing

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