

## Kolloquium Angewandte Informatik

### Learning Graph Patterns from Linked Data - An Adaptive Explainable Embedding

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In recent years, we have seen a lot of progress in the field of Artificial Intelligence, especially in the area of Deep Learning and end-to-end learning. However, the vast majority of these new approaches do not make use of available knowledge in form of Linked Data. One of the reasons for this is that it is still a very challenging task to incorporate such knowledge: At the moment knowledge experts have to manually select knowledge sources and extract useful “knowledge features” up-front.

In this talk, a machine learning algorithm is presented that was originally designed to simulate a part of human thinking itself, namely associating: the process of navigating from one thought to the next. The presented approach is an evolutionary algorithm which can learn graph patterns (SPARQL queries) from a given SPARQL endpoint based on a given list of training source-target entity pairs. After training, given a new source node, the algorithm can predict target nodes analogously to the training list.

It will be presented, how the Graph Pattern Learner operates in an end-to-end learning fashion and extracts features in form of graph patterns without the need for human intervention from huge, noisy, real world knowledge graphs. Further, it will be shown, how the learned graph patterns form a feature space (embedding) adapted to the given list of examples, and being SPARQL queries, can be explained and executed to generate target candidates. The talk will conclude with current research areas arising from these properties.

**Termin: Freitag, 08. Februar 2019, 14:00 Uhr**

**Ort:** Kaiserstr. 89, 76133 Karlsruhe  
Kollegiengebäude am Kronenplatz (Geb. 05.20), 3. OG, Raum 3A-11.2  
(Hinweise für Besucher: [www.aifb.kit.edu/web/Kontakt](http://www.aifb.kit.edu/web/Kontakt))

Veranstalter: Institut AIFB, Forschungsgruppe Information Service Engineering

Zu diesem Vortrag lädt das Institut für Angewandte Informatik und Formale Beschreibungsverfahren alle Interessierten herzlich ein.

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