Call for Master Thesis

FIZ Karlsruhe
Leibniz Institute for Information Infrastructure

Temporal Role Annotation for Named Entities

Are you interested in making a big impact with your thesis? Work with us on an innovative approach for annotating temporally restricted roles in natural language text.

Natural language understanding tasks are key to extracting structured and semantic information from text. One of the most challenging problems in natural language is ambiguity and resolving such ambiguity based on context including temporal information.

This thesis, focuses on the task of extracting temporally restricted roles from text, e.g. "CEO of an organization" or "head of a state". A temporal role has a domain, which may resolve to different entities depending on the context and especially on temporal information, e.g. CEO of Microsoft in 2000.

One of the existing approaches [1] performs a sequence classification, which aims at annotating words or phrases with the label "role" or "no role". It relies on syntactic and semantic features that extract local information (e.g. part of speech tag of a word, the word itself etc.) for a word as well as contextual information for words in a window of +/- 2 words (e.g. presence of NE).

The objective of this thesis is to overcome the barriers of the feature based models [1] and use a Recurrent Neural Network (RNN) [2] for the detection of roles in natural language text.

The work comprises:

1. Implementation of a deep learning approach to detect roles and role phrases in natural language text
2. Extend the set of the supporting roles
3. Comparison with the existing approach [1]

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

[1] https://drive.google.com/open?id=1wd9liwM1PB52XiUAqf1hSI5A_REc8yJQ
[2] https://en.wikipedia.org/wiki/Recurrent_neural_network

Which prerequisites should you have?
- Good programming skills in Java or Python
- Interest in Natural Language Processing
- Interest in Deep Learning technologies
- Interest in Machine Learning approaches

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