Karlsruher Institut für Technologie

Institut für Angewandte Informatik und Formale Beschreibungsverfahren

Graduiertenkolloquium Angewandte Informatik

Semantic Search for Novel Information

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AIFB

Abstract:
Companies more and more face the challenge to screen the continuously increasing number of (Web) documents and to assess the contained information with respect to their relevance and novelty. For instance, technology scouts need to discover and monitor new technologies, while investors and stock brokers would like to be informed about recent acquisitions. Also people in private settings nowadays expect the reporting of so far unknown information as soon and as selective as possible. The systems and workflows used so far for detecting novel information in freshly published news articles and other text documents (semi-)automatically are often very inefficient. This is due to the fact that most approaches only consider the relevance, but not the novelty of text documents. The few existing novel information detection approaches do not use any semantically-structured representation of the already given and of the extracted information.

In this talk, new approaches for detecting and extracting novel, relevant information from unstructured text documents are presented which exploit the explicit modeling of the semantics of the given and extracted information. Using semantics has the benefit of resolving ambiguities in the language and to specify the exact information need regarding relevance and novelty. The explicit modeling is performed by using Semantic Web technologies such as URIs as identifiers for both entities and relations and the Resource Description Framework (RDF) for modeling the data. In the presented work we assume that all knowledge which is known to the system is available in the form of a Knowledge Graph consisting of RDF triples (i.e., entity-relation-entity tupels). Hence, novelty and relevance is considered with respect to a KG.

Firstly, we consider the suitability of existing large Knowledge Graphs for the task of Novel Information Detection. Secondly, we present approaches for Novel Information Detection. The knowledge which is extracted from text and which is compared against the knowledge in a Knowledge Graph can be modeled in different levels of granularity. We present approaches for detecting emerging entities and novel RDF statements. Ultimately, the developed approaches for Novel Information Extraction can be used for Knowledge Base Population. This describes the task of enriching existing Knowledge Graphs with additional entities or triples.

Termin: Freitag, 09. Dezember 2016, 14.00 Uhr

Ort: Kaiserstr. 89, 76133 Karlsruhe
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(Hinweise für Besucher: www.aifb.kit.edu/web/Kontakt)

Veranstalter: Institut AIFB, Forschungsgruppe Wissensmanagement

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

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