

Graduiertenkolloquium Angewandte Informatik

„Dynamic Interaction and Manipulation of Web Resources“

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Abstract:

The World Wide Web is the single largest information system of mankind, allowing over 3 Billion people ubiquitous access to data and services. Apart from human readable Web pages providers offer APIs, which allows applications to combine and include available information and functionality to fulfill arbitrary tasks.

However, there is little coordination between providers, and applications have to handle heterogeneous interfaces with unaligned vocabularies. Linked Open data unifies an interaction model for the consumption of graph-structured interlinked data resources and schemata. Applications can follow links to discover relevant information and align different resources using reasoning features leveraging the schemata. Due to the unpredictable and dynamic nature of the Web, applications have to interpret discovered schema information at runtime and evaluate queries directly over dereferenced resources without relying on pre-existing index structures over the data. At the same time applications must exhibit high-performance characteristics with regard to data processing and retrieval to achieve short response times and a fluent interaction with users.

In this talk we describe how we join methods for evaluating queries over interlinked resources via link traversal with approaches for the integration of data over interlinked schemata via reasoning. In particular, we show how declarative rule based programs can be used to specify desired dynamic interactions with Web resources. We introduce a system with a parallel push-based execution model that allows to balance the heterogeneous workload of resource retrieval and data processing. Our approach allows for the on-the-fly alignment and processing of dynamically retrieved data in a streaming fashion including incremental query answering.

Additionally we go beyond the simple consumption of exposed information by enabling rules to define intended manipulations of remote resources. Build upon the combination of Linked Data and Representational State Transfer principles, our system can effectively interact with Web services and integrate functionality of various providers. Specifically, the effected interactions can be designed to be derived from at runtime identified information. We will illustrate how our approach can be applied to achieve a dynamically reacting system for Web-based applications, thus accommodating the constantly changing environment of the Web.

Termin: Freitag, 19. Juni 2015, 14.00 Uhr

Ort: Englerstraße 11, 76131 Karlsruhe
Kollegiengebäude am Ehrenhof (Geb. 11.40), 2. OG, Raum 231
(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.

Andreas Oberweis, Hartmut Schmeck, Detlef Seese, Wolfried Stucky, Rudi Studer (Org.), Y.Sure-Vetter