Graduiertenkolloquium Angewandte Informatik

Specifying and Monitoring Behaviour on the Linked Data Web

Dipl.-Wi.-Ing. Tobias Käfer, AIFB

The uniform interfaces of web technologies such as REST for interaction and RDF for knowledge representation provide access to a vast amount of data and functionality for billions of people and machines. Linked Data, the combination of both REST and RDF, has found widespread adoption. Current approaches to make use of Linked Data in an integrated fashion typically operate read-only and involve queries and ontologies, both grounded in mathematical logic.

We propose a rule language for behaviour specifications for user agents that operate one writeable Linked Data. We combine the theoretical foundations of HTTP and RDF with Abstract State Machines and use the combination to ground the operational semantics of the rule language in mathematical logic. We evaluate the approach in an the Internet of Things scenario.

For behaviour specifications on higher levels of abstraction, we use workflows.
We propose a block-structured workflow language, which supports the basic workflow patterns, and give operational semantics to the workflow language in the rule language.
We outline how the approach allowed us to analyse aircraft cockpits regarding workflows in Virtual Reality.

We back our considerations using a statistical analysis of a monitoring study of Linked Data on the web. We present the set-up of the study and provide insights into the dynamics of Linked Data on the web: we analyse the dynamics of linked data on the Web on the domain, the host, the document, the triple, and the term level.

For the dynamics on the document level, we investigate conditions for deriving consistent snapshots, as a precondition for reasoning on and querying of Linked Data.

Termin: Freitag, 24. November 2017, 14.00 Uhr

Ort: Kaiserstr. 89, 76133 Karlsruhe

Kollegiengebäude am Kronenplatz (Geb. 05.20), 1. OG, Raum 1C-04
(Hinweise für Besucher: www.aifb.kit.edu/web/Kontakt)

Veranstalter: Institut AIFB, Forschungsgruppe Web Science

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

A. Oberweis, H. Sack, H. Schmeck, Y. Sure-Vetter (Org.), J. M. Zöllner