Fakultät für Mathematik und Informatik
Institut für Informatik
Universität Würzburg

Sonderkolloquium

Hagen Peters

(Universität Kiel)

XML Processing on Graphics Processors

The eXtensible Markup Language is a common format for data exchange and data storage. Today a wide range of languages is based on XML, and many applications, tools and standards use and support XML. Thus the processing performance of XML is an important topic.
In this talk we present our ongoing work on bringing together XML processing and general purpose computing on graphics processors (GPGPU). State of the art GPUs provide high processing power and furthermore, the high programmability of GPUs offered by frameworks like CUDA increases their usability as high-performance co-processors for general-purpose computing. Because of the GPU architecture, GPGPU is naturally well suited for large, massive data-parallel problems. Processing of tree-structured data like XML documents so far has not been in the focus of research. We introduce our approach to use GPUs as XML coprocessors for XPath, XSLT and XML Security. We show how to process multiple XML documents at the same time, and furthermore, how to employ multiple GPU threads for processing a single XML document. The performance results of our prototypical implementation indicate the high potential of this approach.

Prof. Dr. Norbert Luttenberger

(Universität Kiel)

Ontology-based Railway Infrastructure Verification

Motivated by the complexity of the planning process for railway infrastructures, we developed a base ontology for the formalization of expert knowledge in the railway domain. We enhanced this base ontology by a set of rules —written in the Semantic Web Rule Language (SWRL)—that enable the semiautomatic verification of static railway infrastructures and their instrumentation with safety components like signals, balises and so on. Rule violations indicate that it might not be possible to operate trains safely within this infrastructure. The combination of conceptualization on the one side and verification rule set on the other side helps to create a formal and flexible model for railway infrastructures during the planning phase. The talk closes with some remarks on open research problems.

Zu diesen Vorträgen, nebst anschließender Diskussion laden wir Sie herzlich ein.

Die Dozenten der Informatik

Ort: Turing-Hörsaal
Zeit: Donnerstag, 28.04.2011 um 16:00 Uhr