

HPI Kolloquium

15.07.2010, 16:00 Uhr

Hasso-Plattner-Institut, Vorlesungsgebäude, Auditorium 1
Prof.-Dr. Helmert-Str. 2-3, 14482 Potsdam-Babelsberg

„MODELING AND DESIGN OF DATA-CENTRIC SCIENTIFIC WORKFLOWS “

Prof. Dr. Bertram Ludäscher

Professor of Computer Science
Department of Computer Science & Genome Center
University of California, Davis

Abstract

Recent years have seen growing interest in the area of scientific workflows, witnessed, e.g., by the increasing number of publications, special issues, and workshops on the topic. Similarly, there are now numerous academic and commercial products available, competing for users and their attention. Scientists have begun to use scientific workflows in such diverse areas as bioinformatics, ecology, particle physics, and cosmology, to name a few. Scientific workflows allow users not only to automate repetitive data management, simulation, analysis, and visualization tasks, but also provide a step towards a "reproducible science" paradigm, allowing scientists to share workflow descriptions along with provenance data (i.e., information capturing the processing history and data lineage of workflow products). In this talk I will first provide an introduction and overview on scientific workflows, and then present current research challenges and opportunities. Beyond scientific applications, there is now also renewed interest in frameworks for data-centric business workflows. An area that can lead to a fruitful cross-fertilization between business workflows and scientific workflows is modeling and design: How should we think of (scientific or business) workflows? What are fundamental and domain-specific models of computation, and how can they facilitate workflow design, optimization, and execution? How can we use provenance information to improve workflow design, execution, and understanding? I will provide some preliminary answers and promising directions for future research, motivated by scientific applications, but offering also new opportunities for data-oriented business workflows.

Short CV

Bertram Ludäscher is a Professor of Computer Science at the Department of Computer Science and the Genome Center at the University of California, Davis. Prior to joining UC Davis, he worked at the San Diego Supercomputer Center at UC San Diego where until 2004 he was an Associate Research Scientist, leading the Knowledge-Based Information Systems lab.

Gastgeber: Prof. Dr. Mathias Weske