UNIVERSITÄT SALZBURG

Fachbereich Computerwissenschaften

EINLADUNG
zum Gastvortrag am

Montag, 24. Jänner 2011, 13:15 Uhr, T01
Institutsgebäude Jakob-Haringer-Str. 2, Itzling

von

Dr. Alexandra Silva

CWI, Center for Mathematics and Computer
Science, Amsterdam, The Netherlands
zum Thema:

"Deriving syntax and axioms for quantitative regular behaviours"

Dr. Alexandra Silva is a post-doc at the Foundations of software engineering group, at the CWI, in Amsterdam. Until September 2010, she was a PhD student at the CWI under the supervision of Jan Rutten and Marcello Bonsangue. Her thesis, entitled *Kleene coalgebra*, was defended with honors (cum laude) on the 21st December 2010 at the Radboud University in Nijmegen

Abstract:
We present a systematic way to generate (1) languages of (generalised) regular expressions, and (2) sound and complete axiomatizations thereof, for a wide variety of quantitative systems. Our quantitative systems include weighted versions of automata and transition systems, in which transitions are assigned a value in a monoid that represents cost, duration, probability, etc. Such systems are represented as coalgebras and (1) and (2) above are derived in a modular fashion from the underlying (functor) type of these oalgebras. In previous work, we applied a similar approach to a class of systems (without weights) that generalizes both the results of Kleene (on rational languages and DFA's) and Milner (on regular behaviours and finite LTS's), and includes many other systems such as Mealy and Moore machines. In the present paper, we extend this framework to deal with quantitative systems. As a consequence, our results now include languages and axiomatizations, both existing and new ones, for many different kinds of probabilistic systems.

Dr. Ana Sokolova (Host)