Informatik-Kolloquium

Rheinisch-Westfälische Technische Hochschule Aachen
Lehrstuhl für Informatik II

EINLADUNG

Zeit: Donnerstag, 01.März 2001, 17.00 Uhr

Ort: Raum AH I, Ahornstr.55 (ehem. PH)

Referent: Prof. Dr. Deepak Kapur, Department of Computer Science
University of New Mexico

Thema: Induction and Decision Procedures

Abstract:

Decision procedures are considered vital for automating reasoning about system design and mobile computing, particularly hardware verification and proof-carrying code. Their power is, however, limited in the sense that most decision procedures (with Presburger arithmetic being an exception) do not incorporate induction schemes. Induction is considered central in proving properties of computation descriptions using loops, recursion and arbitrary data widths. We will show how decision procedures can be extended with induction schemes without losing automation. Using examples of Presburger arithmetic and decision procedures for quantifier-free theory of free constructors, we will identify constraints on recursively defined functions and conjectures about them so that these conjectures can be decided automatically even though their proofs/disproofs need the use of induction schemes. This work is done in the framework of the theorem proving approach of Rewrite Rule Laboratory (RRL), a rewrite-based induction prover. The cover set method for generating induction schemes based on terminating function definitions seems particularly effective for this approach.

Es laden ein: Die Dozenten der Informatik