

EINLADUNG

Zeit: Donnerstag, 10. April 2008, 16.30 Uhr

Ort: AH I, Ahornstr. 55

Referent: Prof. Francois Irigoin
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Titel: Automatic computation of loop invariants

Abstract:

Loop invariants are used in compilers to perform program transformations such as loop parallelization and to check safety properties such array access overflows. Depending on the kind of loop invariants used, a variety of techniques have been introduced. In this talk we focus on affine invariants, which can be obtained by using abstract interpretation over a polyhedral domain. Abstract interpretation is a static program analysis based on the automatic conversion of concrete program states into abstract program states and on the static computation of these abstract states, using so-called widening operators to converge quickly towards a valid solution, especially for loop invariants. To handle large programs and procedure calls it is useful to define abstract commands. We show how abstract commands can be used instead of abstract states to derive satisfying loop invariants without using widening operators.