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Recent advances in program verification through computer algebra. (English) Zbl 1267.68099

Summary: In this paper, we summarize the results on program verification through semi-algebraic systems (SASs) solving that we have obtained, including automatic discovery of invariants and ranking functions, symbolic decision procedure for the termination of a class of linear loops, termination analysis of nonlinear systems, and so on.

MSC:
68N30 Mathematical aspects of software engineering (specification, verification, metrics, requirements, etc.)
68Q60 Specification and verification (program logics, model checking, etc.)

Keywords:
program verification; computer algebra; semi-algebraic systems solving; embedded systems; invariants; ranking functions; termination

Software:
QEPCAD; PVS; DISCOVERER; Isabelle/HOL

Full Text: DOI

References:


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