

Proving and Inferring Invariants

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Abstract

Program analysis consists in automatically proving properties of computer programs. This is in general an undecidable problem. Yet, there exist methods that work for many programs, enough to be of industrial significance. Analysis of programs with loops or recursive functions relies on the notion of invariants; while certain methods require these invariants to be input by the user, others attempt to infer them. Certain invariant inference problems can be recast as optimization or numerical constraint problems; we'll describe a few methods for solving these.

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