The New Generation of Algorithmic Debuggers

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Abstract

Algorithmic debugging is a debugging technique that has been extended to practically all programming paradigms. Roughly speaking, the technique constructs an internal representation of all (sub)computations performed during the execution of a buggy program; and then, it asks the programmer about the correctness of such computations. The answers of the programmer guide the search for the bug until it is isolated by discarding correct parts of the program. After twenty years of research in algorithmic debugging many different techniques have appeared to improve the original proposal. Recent advances in the internal architecture of algorithmic debuggers face the problem of scalability with great improvements in the performance thanks to the use of static transformations of the internal data structures used. The talk will present a detailed comparison of the last algorithmic debugging techniques analyzing their differences, their costs, and how can they be integrated into a real algorithmic debugger.

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