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Performance estimation using symbolic data. (English) [Zbl 1390.68191]


Summary: Symbolic execution is a useful technique in formal verification and testing. In this paper, we propose to use it to estimate the performance of programs. We first extract a set of paths (either randomly or systematically) from the program, and then obtain a weighted average of the performance of the paths. The weight of a path is the number of input data that drive the program to execute along the path, or the size of the input space that corresponds to the path. As compared with traditional benchmarking, the proposed approach has the benefit that it uses more points in the input space. Thus it is more representative in some sense. We illustrate the new approach with a sorting algorithm and a selection algorithm.

For the entire collection see [Zbl 1269.68023].

MSC:

68N30 Mathematical aspects of software engineering (specification, verification, metrics, requirements, etc.)
68P10 Searching and sorting

Software:

Find; GraphBase

Full Text: DOI

References:


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