TOPICS IN COMPUTATIONAL COMPLEXITY
AND THE ANALYSIS OF ALGORITHMS

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Abstract
A collection of 18 papers by R. P. Brent and various co-authors, on the following topics:
1. Parallel evaluation of arithmetic expressions.
2. Circuits for arithmetic operations.
3. Continuous models for discrete algorithms.
5. The complexity of algorithms for solving nonlinear equations.
6. Asymptotically fast algorithms for high-precision computations.
The theme of the collection is the derivation of rigorous bounds on the cost of certain computations. Cost may be measured in several different ways. For example, the number of arithmetic operations performed on integers or real numbers, the number of Boolean operations, the number of function and derivative evaluations, the time required for the computation on a parallel machine, or the area-time product for a VLSI circuit. Most of the papers are concerned with upper bounds, which are established by exhibiting an algorithm and analyzing its performance. However, papers [6, 17] establish nontrivial lower bounds.

Comments
Only an Abstract is given here. The full collection appeared as [19] and was submitted to Monash University as a D.Sc. thesis. The papers included are [1–18] below.

References


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