Quantitative
Modeling
In
Parallel
Systems

On the Power Series Algorithm

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Abstract The power series algorithm is a numerical procedure for solving general Markov processes. This paper gives a practical introduction to the algorithm, and presents some new results. We start by showing how the algorithm can be applied to a specific problem, the fork–join queue. Then we prove that the power series algorithm can indeed be used to solve general Markov processes. In the subsequent section we deal with the convergence properties of the algorithm. It behaves particularly well when applied to finite state processes, which is illustrated with the analysis of a bounded Petri net. We end with discussing the literature.

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