Approximations of Stochastic Nets by Mean of Continuous Petri Nets

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Abstract

Reliability analysis is often based on stochastic discrete event models like Markov models or stochastic Petri nets. For complex dynamical systems with numerous components, analytical expressions of the steady state are tedious to work out because of the combinatorial explosion with discrete models. The contribution of this paper is to approximate the steady state of mono T-semiflow stochastic nets by mean of continuous Petri nets according to a modification of the maximal firing speed vector definition. This result is then used to accelerate convergence of stochastic simulations.

References

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Index Terms

Computer Science

Information Sciences
Keywords

Stochastic Petri nets, continuous Petri nets, steady state, reliability analysis.