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Learning Automata-Based Adaptive Petri Net and Its Application to Priority Assignment in Queuing Systems With Unknown Parameters

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In this paper, an adaptive Petri net (PN), capable of adaptation to environmental changes, is introduced by the fusion of learning automata and PN. In this new model, called learning automata-based adaptive PN (APN-LA), learning automata are used to resolve the conflicts among the transitions. In the proposed APN-LA model, transitions are portioned into several sets of conflicting transitions and each set of conflicting transitions is equipped with a learning automaton

which is responsible for controlling the conflicts among transitions in the corresponding transition set. We also generalize the proposed APN-LA to ASPN-LA which is a fusion between LA and stochastic PN (SPN). An application of the proposed ASPN-LA to priority assignment in queuing systems with unknown parameters is also presented.

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