A Modified Policy Iteration Algorithm for Discounted Reward Markov Decision Processes

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Authors:
Sanaa Chafik, Cherki Daoui

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Abstract

The running time of the classical algorithms of the Markov Decision Process (MDP) typically grows linearly with the state space size, which makes them frequently intractable. This paper presents a Modified Policy Iteration algorithm to compute an optimal policy for large Markov decision processes in the discounted reward criteria and under infinite horizon. The idea of this algorithm is based on the topology of the problem; moreover, an Open Multi-Processing (Open-MP) programming model is applied to attain efficient parallel performance in solving the Modified algorithm.

References


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Index Terms

Computer Science

Algorithms
Keywords

Markov Decision Processes; Discounted reward criterion; Policy Iteration algorithm; Open Multi-Processing; shared memory; Parallelizing.