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A Case-Based Recommender for Task Assignment in Heterogeneous Computing Systems

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Abstract

Case-based reasoning (CBR) is a knowledge-based problem-solving technique, which is based on reuse of previous experiences. In this paper we propose a new model for static task assignment in heterogeneous computing systems. The proposed model is a combination of the case based reasoning and the learning automata model. In this new model a learning automata model is used as adaptation mechanism which adapts previously experienced cases to the problem to be solved. The objective of the proposed model is to reduce the number of iterations required to find a semi-optimum solution. The application is modeled as a set of independent tasks and the heterogeneous computing system is modeled as a network of machines. Using computer simulation, it is shown that the combined model outperforms the model that only uses learning automata.

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Fourth International Conference on Hybrid Intelligent Systems (HIS'04), 2004.