

A Hybrid Distributed Algorithm for Multi-Objective Dynamic Flexible Job Shop Scheduling Problem

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Abstract : In this paper, a hybrid distributed algorithm has been suggested for multi-objective dynamic flexible job shop scheduling problem. The proposed algorithm is high level, in which several algorithms search the space on different machines simultaneously also it is a hybrid algorithm that takes advantages of the artificial intelligence, evolutionary and optimization methods. Distribution is done at different levels and new approaches are used for design of the algorithm. Apache spark and Hadoop frameworks have been used for the distribution of the algorithm. The Pareto optimality approach is used for solving the multi-objective benchmarks. The suggested algorithm that is able to solve large-size problems in short times has been compared with the successful algorithms of the literature. The results prove high speed and efficiency of the algorithm.

Keywords : distributed algorithms, apache-spark, Hadoop, flexible dynamic job shop scheduling, multi-objective optimization

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