Abstract

Job shop scheduling problem belongs to a class of NP-Hard problems. Hence, finding an optimal solution for this problem is a difficult task. In this study, a hybrid method consisting of Genetic Algorithm (GA) and Differential Evolution (DE) algorithm has been proposed for solving the Job Shop Scheduling problem (JSSP). These algorithms are evolutionary algorithms for solving optimization problems which refine the candidate solutions iteratively. The results of previous studies show that the application of genetic algorithm and differential evolution algorithm individually for this problem yield results close to the upper bounds. The proposed algorithm implemented in MATLAB R2013a uses minimization of makespan as the objective function. This algorithm has been tested on 50 instances of Taillard series (TA01-50) benchmark problem. The simulation results obtained by the proposed algorithm are better than those obtained by the IPSO-TSAB algorithm.

References
Makespan Optimization in Job Shop Scheduling Problem using Differential Genetic Algorithm


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Index Terms

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Keywords

Combinatorial optimization; Job Shop Scheduling; Genetic Algorithm (GA); Differential Evolution (DE); Makespan.