

基于混合蝙蝠算法的多目标柔性作业车间调度问题

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摘 要: 该文对基本蝙蝠算法进行了改进, 并将其与变邻域搜索算法相结合提出了一种新的混合蝙蝠算法(Hybrid bat algorithm, HBA). 算法中设计了个体位置向量的表示方法以及位置向量与调度解间的转换机制. 此外, 给出了种群初始化方法和两种邻域结构, 并引入变邻域搜索算法增强算法搜索能力. 最后, 通过对基准算例仿真验证了所提算法的有效性.

关键词: 柔性作业车间调度; 多目标优化; 蝙蝠算法; 变邻域搜索算法

Hybrid Bat Algorithm for Multi-objective Flexible Job Shop Scheduling Problem

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Abstract: In this paper, the multi-objective flexible job shop scheduling problem (FJSP) and the basic bat algorithm are introduced at first. Secondly, the basic bat algorithm is improved and combined with the variable neighborhood search algorithm to obtain a new hybrid bat algorithm (HBA). In HBA, an individual position vector representation method and the conversion mechanism between the individual position vector and the scheduling solution are designed. In addition, a population initialization scheme and two neighborhood structures are given, and a variable neighborhood algorithm is introduced to enhance the searching ability. Finally, benchmark instances are simulated to demonstrate the effectiveness of the proposed algorithm.

Key words: flexible job shop scheduling; multi-objective optimization; bat algorithm; variable neighborhood search algorithm

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