An Approach of Hybrid Genetic Algorithm in Open Shop Scheduling

尤冠斌、駱景堯

E-mail: 9221541@mail.dyu.edu.tw

ABSTRACT

The most important characteristic of open shop scheduling is no restrictions of the processing order of the jobs. Because open shop scheduling problems have been proved as NP-hard problem, it is too hard to simplify the studies. Thus, most of research assumes setup and removal times are even negligible or part of the processing time. In this research, we look the setup, processing, and removal times as separatable, then take the sequence-independent setup and dependent removal times into account when deal with an open shop scheduling problem with the objective to minimize the total job tardiness. The genetic algorithm has been used widely in many fields and proved of its well performance. Some researchers point out that the genetic combines with other heuristics will have the better performance, thus, in this research, we develop a hybrid genetic algorithm called double genetic algorithm for solving the addressed scheduling problems. The experimental results show that the proposed double genetic algorithm performs well both in solution quality and efficiency.

Keywords : Open shop ; Sequence-independent setup time ; Sequence-dependent removal time ; Hybrid genetic algorithm ; Double genetic algorithm

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