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Discrete Breeding Swarm for Cost Minimization of Parallel Job Shop Scheduling Problem

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Abstract : Parallel Job Shop Scheduling Problem (JSP) is a multi-objective and multi constrains NP- optimization problem. Traditional Artificial Intelligence techniques have been widely used; however, they could be trapped into the local minimum without reaching the optimum solution, so we propose a hybrid Artificial Intelligence model (AI) with Discrete Breeding Swarm (DBS) added to traditional Artificial Intelligence to avoid this trapping. This model is applied in the cost minimization of the Car Sequencing and Operator Allocation (CSOA) problem. The practical experiment shows that our model outperforms other techniques in cost minimization.

Keywords : parallel job shop scheduling problem, artificial intelligence, discrete breeding swarm, car sequencing and operator allocation, cost minimization
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