Abstract

This paper introduces a novel improved bat algorithm for solving job shop scheduling problem reaching to the optimal. A proposed novel improved Bat Algorithm plays an important role in effective and efficient computations of function optimization for job shop scheduling problem.

In this paper, an optimization algorithm based on improving Giffler and Thompson algorithm through recognizing a non-delay schedule for starting time instead of finishing time to solve the NP-hard job shop scheduling problem.

For improving the diversity of population, enhance the quality of the solution, swap operator is used to enhance the solution.

This paper is based on ten benchmarking problems. The results demonstrate that the proposed novel improved algorithm gives better results than the particle swarm algorithm and our previous modified algorithm in both convergence speed and accuracy.
References

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**Index Terms**

Computer Science  
Algorithms

**Keywords**

Job Shop Scheduling, Makespan, Bat Algorithm, Priority based representation, Giffler and Thompson Algorithm and Swap operator.