

Abstract

Two dimensional non-guillotine cutting stock problem often occurs in many textile industries where a rectangular stock must be cut into smaller pieces with different size and number. This problem included into combinatorial problems with large solution space and is hard to resolve.

In this final project used bat algorithm which metaheuristics optimization algorithm and included into swarm intelligent. This Algorithm inspired from echolocation in microbats. The algorithm was developed based on advantage of positioning using velocity in particle swarm optimization(PSO) and cooling schedule in simulated annealing(SA) so the search process is done not only exploration (global search) but also exploitation (local search).

The experiment results on three datasets show the bat algorithm can solve cutting stock problem with an optimization above 90%.

Keywords: cutting stock problem, swarm intelligent, bats algorithm, optimization.