Abstract

The processing time for each job in JSSP is often imprecise in many real world applications. Therefore, JSSP with fuzzy processing time was addressed in this paper. Triangular fuzzy numbers were used to describe the fuzzy processing time. In this paper, a hybrid particle swarm optimization (HPSO) algorithm was presented for solving JSSP. The quality of the PSO algorithm final solution depends on two factors: the quality of initial solutions and adjustment of PSO parameters. In this study, to improve the quality of initial solutions, a constructive greedy randomized adaptive search procedure (GRASP) algorithm was proposed. Furthermore, in order to adjust HPSO parameters, a fuzzy interference system was applied to compute these parameters at each iteration of HPSO. Therefore, the presented algorithm in this study was called hybrid fuzzy adoptive PSO (HFAPSO). Benchmarks with fuzzy processing time were used for testing the presented algorithm.

References

Hybrid Fuzzy Adaptive Particle Swarm Optimization Algorithm for Fuzzy Job Shop Scheduling Problem (FJSSP)


Index Terms

Computer Science

Fuzzy Systems
Keywords

Fuzzy interference system  Fuzzy job shop scheduling problem  Greedy randomized adaptive search procedure

Hybrid Particle Swarm Optimization.