

# A multi-objective PSO for job-shop scheduling problems

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## Abstract

Most previous research into the job-shop scheduling problem has concentrated on finding a single optimal solution (e.g., makespan), even though the actual requirement of most production systems requires multi-objective optimization. The aim of this paper is to construct a particle swarm optimization (PSO) for an elaborate multi-objective job-shop scheduling problem. The original PSO was used to solve continuous optimization problems. Due to the discrete solution spaces of scheduling optimization problems, the authors modified the particle position representation, particle movement, and particle velocity in this study. The modified PSO was used to solve various benchmark problems. Test results demonstrated that the modified PSO performed better in search quality and efficiency than traditional evolutionary heuristics.

Keyword : job-shop scheduling; particle swarm optimization; multiple objectives