

Hybrid general pattern search and simulated annealing for industrial production planning problems

Abstract

In this paper, the hybridization of GPS (General Pattern Search) method and SA (Simulated Annealing) incorporated in the optimization process in order to look for the global optimal solution for the fitness function and decision variables as well as minimum computational CPU time. The real strength of SA approach been tested in this case study problem of industrial production planning. This is due to the great advantage of SA for being easily escaping from trapped in local minima by accepting up-hill move through a probabilistic procedure in the final stages of optimization process. Vasant [1] in his Ph. D thesis has provided 16 different techniques of heuristic and meta-heuristic in solving industrial production problems with non-linear cubic objective functions, eight decision variables and 29 constraints. In this paper, fuzzy technological problems have been solved using hybrid techniques of general pattern search and simulated annealing. The simulated and computational results are compared to other various evolutionary techniques.