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Abstract

Computational intelligence techniques are part of the search process in several recent heuristics. One of their main benefits is the use of an adaptive memory to guide the search towards regions with promising solutions. This paper follows this approach proposing a variation of a well-known iteration independent metaheuristic. This variation adds a learning stage to the search process, which can improve the quality of the solutions found. The proposed metaheuristic, named Intelligent-Guided Adaptive Search (IGAS), provides an efficient solution to the maximum covering facility location problem. Computational experiments conducted by the authors showed that the solutions found by IGAS were better than the solutions obtained by popular methods found in the literature.

Keywords:
Intelligent Guided Adaptive Search, Maximum Covering Location Problem, metaheuristic, Growing Neural Gas

1. Introduction

Facility location is a special class of problems whose goal is to locate a limited number of facilities that fulfill particular constraints. These constraints are primarily dictated by practical necessities, such as a reasonable public coverage. One of these

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