

# A weed colonization inspired algorithm for the weighted set cover problem

Crawford B.

Soto R.

Legüe I.F.

Misra S.

Olguín E.

The Weighted Set Cover Problem (SCP) is a popular optimization problem that has been applied to different industrial applications, including scheduling, manufacturing, service planning and location problems. It consists in to find low cost solutions covering a set of requirements or needs. In this paper, we solve the SCP using a recent nature inspired algorithm: Invasive Weed Optimization (IWO). IWO imitates the invasive behavior of real weeds: natural reproduction and selection where the best weed has more chance of reproduction. We test our approach using known ORLIB test problems for the SCP. The computational results show that the IWO metaheuristic can find very good results. © Springer International Publishing Switzerland 2016.

Combinatorial optimization

Invasive Weed Optimization

Set covering problem

Algorithms

Combinatorial optimization

Computational results

Invasive weed optimization

Location problems

Low-cost solution

Nature inspired algorithms

Optimization problems

Set covering problem

Weighted set covers

Optimization