

# Two swarm intelligence algorithms for the Set Covering problem

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The Weighted Set Covering problem is a formal model for many industrial optimization problems. In the Weighted Set Covering Problem the goal is to choose a subset of columns of minimal cost in order to cover every row. Here, we present its resolution with two novel metaheuristics: Firefly Algorithm and Artificial Bee Colony Algorithm. The Firefly Algorithm is inspired by the flashing behaviour of fireflies. The main purpose of flashing is to act as a signal to attract other fireflies. The flashing light can be formulated in such a way that it is associated with the objective function to be optimized. The Artificial Bee Colony Algorithm mimics the food foraging behaviour of honey bee colonies. In its basic version the algorithm performs a kind of neighbourhood search combined with random search. Experimental results show that both are competitive in terms of solution quality with other recent metaheuristic approaches.

Artificial Bee Colony Algorithm

Firefly Algorithm

Metaheuristics

Swarm intelligence

Weighted Set Covering Problem

Application programs

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