

Binary cat swarm optimization for the set covering problem [Optimización por Colonia de Gatos del Problema de Cobertura de Conjuntos]

Crawford B.

Soto R.

Berrios N.

Johnson F.

Paredes F.

The set covering problem belongs to the combinatorial optimization problems, whose complexity is exponential theoretically established as NP-complex problems. Consists in finding a subset of columns in a matrix of zeros and ones such that cover all rows of the matrix at minimal cost. The solution to this problem is presented using, for first time, the binary cat swarm optimization algorithm. This metaheuristic is based on the cat's behavior, where cats have curiosity by objects in motion and have a great hunting ability. Cats have two modes of behavior: seeking mode and tracing mode. The algorithm is tested on 65 instances, which are compared in a result table including a column with the relative percentage deviation. © 2015 AISTI.

binary cat swarm optimization

metaheuristic

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