

Binary Firefly algorithm for the set covering problem [Algoritmo Luciérnaga Binario para el Problema de Cobertura de Conjuntos]

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The set cover problem, belongs to the branch of 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 a minimal cost. In this work, the problem is solved by binary Firefly algorithm, based on the flashing behavior of fireflies, using binary representation. A firefly produces a change in brightness based position between the fireflies. The new position is determined by the change in the value of the old position of the firefly, but the number of the new position is a real number, we can solve this problem with the function tanh binarization compared with a random number generated uniformly distributed between 0 and 1. The proposed algorithm has been tested on 65 benchmark instances. The results show that it is capable of producing solutions competitivas. virtualización; ultrasecuenciación genetics. © 2014 AISTI.

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Set cover problem

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Problem solving