CENTRALIZED ANT COLONY OPTIMIZATION ALGORITHM FOR THE MINIMUM DOMINATING SET PROBLEM

Raka Jovanovic

Abstract

In this paper, a centralized implementation of an ant colony optimization (ACO) algorithm for solving the Minimum Dominant Set Problem is presented. We show an auxiliary structure that is needed for efficient dynamic calculation of the heuristic function necessary for the ACO implementation. Tests have been done for the algorithm on graphs with different sizes, edge densities which have shown that the use of it greatly improves the results acquired from the known greedy algorithm.

Keywords and phrases: ant colony, dominant set problem, optimization problems, population based algorithms.