**회전을 고려한 2차원 상자 채우기 문제에 대한 새로운 개미 군집 알고리즘 = A new ant colony algorithm for the 2-dimensional bin packing problem with rotations**

The two-dimensional bin-packing problem (2D-BPP) with rotations is an important optimization problem which has a large number of practical applications. It consists of the non-overlapping placement of a set of rectangular pieces in the lowest number of bins of a homogenous size, with the edges of these pieces always parallel to the sides of bins, and with free 90 degrees rotation. A large number of methods have been proposed to solve this problem, including heuristic and meta-heuristic approaches. In this thesis, we presents a new heuristic algorithm to solve the 2D-BPP that incorporates ant colony algorithm specially designed for this problem. The performance of this algorithm is compared with other heuristics previously proposed by other authors in ten classes of frequently used benchmark problems. It is observed that, in some cases, the method here proposed is able to equal or even outperform to the results of the other two heuristics in most test problems.