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Bee Colony Optimization Applied to the Bin Packing Problem

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Abstract : We treat the two-dimensional bin packing problem which involves packing a given set of rectangles into a minimum number of larger identical rectangles called bins. This combinatorial problem is NP-hard. We propose a pretreatment for the oriented version of the problem that allows the valorization of the lost areas in the bins and the reduction of the size problem. A heuristic method based on the strategy first-fit adapted to this problem is presented. We present an approach of resolution by bee colony optimization. Computational results express a comparison of the number of bins used with and without pretreatment.

Keywords : bee colony optimization, bin packing, heuristic algorithm, pretreatment
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