

ABSTRACT

Artificial Bee Colony Optimization for the Two-dimensional Loading Capacitated Vehicle Routing Problem

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Two-dimensional loading capacitated vehicle routing problem is an extension of the well-known Capacitated Vehicle Routing Problem (CVRP). In this problem a fleet of fixed vehicles based at a central depot deliver the demand of customers that consists of a certain number of two-dimensional weighted items. Demand of each customer consists of items with specific weight, length and width. Each vehicle has capacity and two dimensional loading constraints that can not be over loaded. The area of the overall loaded items should not exceed the area of the vehicle. The objective is to deliver items in shortest route.

In this thesis, an artificial bee colony optimization algorithm is proposed for solving the two dimensional loading capacitated vehicle routing problem, in which the two-dimensional loading component of the problem is solved through a proposed heuristic procedure. The considerable results of the proposed artificial bee colony optimization show the proficiency of this algorithm.