

A Hybrid Heuristic for the Team Orienteering Problem

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Abstract : In this work, we propose a hybrid heuristic in order to solve the Team Orienteering Problem (TOP). Given a set of points (or customers), each with associated score (profit or benefit), and a team that has a fixed number of members, the problem to solve is to visit a subset of points in order to maximize the total collected score. Each member performs a tour starting at the start point, visiting distinct customers and the tour terminates at the arrival point. In addition, each point is visited at most once, and the total time in each tour cannot be greater than a given value. The proposed heuristic combines beam search and a local optimization strategy. The algorithm was tested on several sets of instances and encouraging results were obtained.

Keywords : team orienteering problem, vehicle routing, beam search, local search

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