

Selection Step Impact on the Genetic Algorithm for the Bi-Objective Vehicle Routing Problem with Time Windows

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This paper proposes a Genetic Algorithms for the Bi-Objectif Vehicle Routing Problem with Time Windows, where both total length travelled by the vehicles and the number of vehicles are minimized. The Bi-Objective optimization solution is not a single point, it is a set of points, known as a Pareto Optimal Set (POS). The main topic of this work is to propose three different selection procedures and evaluate the selection step impact on the Genetic Algorithm. Those selection procedures depend to the Pareto Optimal Set. The appropriate selection procedure balances between intensification and diversification. The experimental results of the first step of the Genetic Algorithm (initial population of solutions) and the first selection procedure are done. The numerical results of the first phase are encouraging because for some instances the results of the first selection procedure are better than the solomon's benchmark.

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