

عنوان مقاله:

Solving a Bi-Objective Transportation Vehicle Routing Problem for Waste Collection by a New Hybrid Algorithm

محل انتشار:

فصلنامه بین المللی تحقیقات در مهندسی صنایع، دوره 5، شماره 1 (سال: 1395)

تعداد صفحات اصل مقاله: 27

نویسندگان:

H. Farrokhi-Asl - School of Industrial Engineering, College of Engineering, University of Tehran, Tehran, Iran

R. Tavakkoli-Moghaddam - School of Industrial Engineering, College of Engineering, University of Tehran, Tehran, Iran

خلاصه مقاله:

This paper is an extension of the well-known vehicle routing problem (VRP) consisting of two stages. The first and second stages deal with the vehicle routing and transportation problems, respectively. Waste collection is one of the applications of the considered problem in a real world situation. A new mathematical model for this type of the problem is presented that minimizes the waste collection cost and decreases the risk posed to the environment for hazardous wastes transportation simultaneously. According to the NP-hard nature of the problem, a new multi-objective hybrid cultural and genetic algorithm (MOHCG) is proposed to obtain Pareto solutions. A straightforward representation for coding the given model is proposed to help us in reducing the computational time. To validate the proposed algorithm, a number of test problems are conducted and the obtained results are compared with the results of the well-known multi-objective evolutionary algorithm, namely non-dominated sorting genetic algorithm (NSGA-II), with respect to some comparison metrics. Finally, the conclusion is provided.

کلمات کلیدی:

Waste collection, transportation vehicle routing, Multi-Objective Optimization, Cultural algorithm

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1379671>

