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A LOADING PROCEDURE FOR THE CONTAINERSHIP STOWAGE PROBLEM

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This chapter deals with the containership stowage problem. It is an NP-hard combinatorial optimization whose goal is to find optimal plans for stowing containers into a containership with low operational costs, subject to a set of structural and operational constraints. In order to optimize a stowage planning, like in the literature, we have developed an approach that decomposes the problem hierarchically. This approach divides the problem into two phases: the first one consists of generating a relaxed initial solution, and the second phase is intended to make this solution feasible. In this chapter, we focus on the first phase of this approach, and a new loading procedure to generate an initial solution is proposed. This procedure produces solutions in short running time, so that, it could be applied to solve real instances.

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CLUSTERING BIN PACKING INSTANCES FOR GENERATING A MINIMAL SET OF HEURISTICS BY USING GRAMMATICAL EVOLUTION

Autor(es): Sotelo-Figueroa, Marco Aurelio; Puga-Soberanes, Héctor José; Carpio, Juan Martín; Fraire-Huacuja, Héctor J.; Cruz-Reyes, Laura; Soría-Alcaraz, Jorge Alberto

Clustering Bin Packing Instances for Generating a Minimal Set of Heuristics by Using Grammatical Evolution

LIBRO: Fuzzy Logic Augmentation of Nature-Inspired Optimization Metaheuristics - Springer International Publishing (pags. -), ESTADOS UNIDOS; ISBN: 978-3-319-10960-2;

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MULTIPLE KERNEL SUPPORT VECTOR MACHINE PROBLEM IS NP-COMPLETE.

Autor(es): Padierna, Luis Carlos; Carpio, Juan Martín; Baltazar, María del Rosario; Puga, Héctor José; Fraire, Héctor Joaquín

In this work a polynomial-time reduction to the NP-complete subset sum problem is followed in order to prove the complexity of Multiple Kernel Support Vector Machine decision problem. The Lagrangian function of the standard Support Vector Machine in its dual form was considered to derive the proof. Results of this derivation allow researchers to properly justify the use of approximate methods, such as heuristics and metaheuristics, when working with multiple kernel learning algorithms.

LIBRO: Nature-Inspired Computation and Machine Learning - Springer International Publishing (pags. -), MÉXICO; ISBN: 0302-9743;

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A NEW INTEGER LINEAR PROGRAMMING MODEL FOR THE CUTWIDTH MINIMIZATION PROBLEM OF A CONNECTED UNDIRECTED GRAPH.

Autor(es): López-Locés, Mario C.; Castillo-García, Norberto; Fraire-Huacuja, Héctor J.; Bouvry, Pascal; Pecero, Johnatan E.; Pazos-Rangel, Rodolfo A.; G.-Barbosa, Juan J.; Valdez, Fevrier

In this chapter we propose a new integer linear programming model based on precedences for the cutwidth minimization problem (CWP). A review of the literature indicates that this model is the only one reported for this problem. The results of the experiments with standard instances shows that the solution of the problem with the proposed model outperforms in quality and efficiency to the one reported in the state of the art. Our model increases the number of optimal solutions by 38.46 % and the gap reduction by 45.56 %. Moreover, this quality improvement is reached with a time solution reduction of 41.73 %. It is considered that the approach used in this work can be used in other linear ordering problems.

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A SURVEY OF DECOMPOSITION METHODS FOR MULTI-OBJECTIVE OPTIMIZATION

Autor(es): Pineda, Alejandro Santiago; Fraire-Huacuja, Héctor Joaquín; Dorronsoro, Bernabé; Pecero, Johnatan E.; Gómez-