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A hybrid metaheuristic for the Bus Driver Rostering Problem

(2013) *ICORES 2013 - Proceedings of the 2nd International Conference on Operations Research and Enterprise Systems*, pp. 32-42.

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Abstract

This paper presents a new decomposition model for the Bus Driver Rostering Problem and proposes the hybridization of column generation and genetic algorithms to achieve good quality rosters in short time. The decomposition model is based on the definition of a subproblem for each driver, which is responsible for the creation of valid work-schedules for the rostering period. Column generation is used to obtain an optimal linear solution. This solution and the subproblems' solutions obtained during the column generation are then used by the genetic algorithm to find good quality combinations of drivers' schedules, i.e. good quality rosters. Computational tests show the efficiency and effectiveness of the proposed approach.

Author Keywords

Column generation; Genetic algorithms; Hybrid metaheuristic; Rostering

Document Type: Conference Paper

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