A fast dynamic programming multi-objective knapsack problem

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June 2, 2017

Abstract

This work addresses... The Multidi Objective knapsack programming. The dynamic programming method... The data structure...

1 Introduction

2 The Multidimensional Knapsack Problem

3 The Dynamic Programing Algorithm

[1]

4 The use of data structure

The k-d tree is a type of binary search tree for indexing multidimenstional data [2] with simple construction and low space usage. Despite its simplicity it efficiently supports operations like nearest neighbour search and range search.

Due to its simplicity and efficiency the k-d tree is widely used on spacial geometry algorithms.

Its advantages.

Efficiency notes.

Its operations...

Use on the algorithm.

Indexing the solutions and range operations.

Tends to increase the feasibility on problems with higher dimensions.

*Research supported by Fundação de Amparo à Pesquisa do Espírito Santo.

5 Computational experiments

- Base de dados utilizaca
- Parametros dos algoritmos
- Anlise dos resultados (comparao)

6 Conclusions and future remarks

- Concluses dos resultados
- Trabalhos futuros

References

[1] Cristina Bazgan, Hadrien Hugot, and Daniel Vanderpooten. Solving efficiently the 0–1 multi-objective knapsack problem. *Computers & Operations Research*, 36(1):260–279, 2009.

[2] Jon Louis Bentley. Multidimensional binary search trees used for associative searching. *Communications of the ACM*, 18(9):509–517, 1975.