

عنوان مقاله:

Connected bin packing problem on traceable graphs

محل انتشار:

مجله ایرانی آنالیز عددی و بهینه سازی، دوره 12، شماره 1 (سال: 1401)

تعداد صفحات اصل مقاله: 9

نویسندگان:

A. Nejoomi - Department of Computer Science, Shahed University, Tehran, Iran

A. Dolati - Department of Computer Science, Shahed University, Tehran, Iran

خلاصه مقاله:

We consider a new extension of the bin packing problem in which a set of connectivity constraints should be satisfied. An undirected graph with a weight function on the nodes is given. The objective is to pack all the nodes in the minimum number of unit-capacity bins, such that the induced subgraph on the set of nodes packed in each bin is connected. After analyzing some structural properties of the problem, we present a linear time approximation algorithm for this problem when the underlying graph is traceable. We show that the approximation factor of this algorithm is γ and this factor is tight. Finally, concerning the investigated structural properties, we extend the algorithm for more general graphs. This extended algorithm also has a tight approximation factor of γ .

کلمات کلیدی:

Bin Packing Problem, Connectivity, Complexity theory, Approximation Algorithms

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1424909>

