Square and rectangle covering with outliers.  (English)  

Summary: For a set of \( n \) points in the plane, we consider the axis-aligned \((p,k)\)-Box Covering problem: Find \( p \) axis-aligned, pairwise disjoint boxes that together contain exactly \( n-k \) points. Here, our boxes are either squares or rectangles, and we want to minimize the area of the largest box. For squares, we present algorithms that find the solution in \( O(n + k \log k) \) time for \( p = 1 \), and in \( O(n \log n + k^p \log^p k) \) time for \( p = 2, 3 \). For rectangles we have running times of \( O(n + k^3) \) for \( p = 1 \) and \( O(n \log n + k^{2+p} \log^{p-1} k) \) time for \( p = 2, 3 \). In all cases, our algorithms use \( O(n) \) space.

For the entire collection see [Zbl 1166.68003].

MSC:

- 68U05  Computer graphics; computational geometry (digital and algorithmic aspects)
- 68Q25  Analysis of algorithms and problem complexity

Full Text: DOI

References:


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