

1 The 1-center problem with outliers

Given a set of n points in \mathbb{R}^2 , find the smallest circle that includes at least k of them.

Variation: Given an indexed set N of n weighted points in \mathbb{R}^2 , with weight $w_i \forall i \in N$, find the smallest circle that includes a subset S of points such that $\sum_{i \in S} w_i \geq W$ for a given threshold W .

Study whether the problem can be solved exactly and efficiently by a greedy algorithm on the Voronoi diagram.

Reference: LION conference 2022.

Suitable for a thesis or a project for the Combinatorial Optimization course.