Greedy Heuristics for Solving the Weighted Orthogonal Art Gallery Problem

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1 Introduction

The Orthogonal Art Gallery Problem (OAGP) is one of many variants of Art Gallery Problem (AGP). AGP asks for a set of points G of minimal cardinality on some polygon P such that for each point $y \in P$ there is $x \in G$ such that $xy \subset P$. Set P is called guard set of P, and the points from G as guards. The orthogonal AGP consider on arbitrary polygon but whose angles are 90^{deg} and 270^{deg}. This problem is stated by Victor Klee in 1973. [2]. The problem is motivated from installing the cameras in a building (or gallery) such that a maximal surface is covered (possibly all areas are covered). Orthogonality comes that most of the walls are orthogonal to some other in a building. A variant of the OAGP for which we are interested in this studies allows only that guards are positioned at the edges of polygon P. It is known to be NP–hard [1].

Since then, many approaches have been proposed to solve the problem. FiXme: TODO: work on literature approaches

2 Preliminaries

3 Algorithmic Approaches

4 Computational Results

5 Conclusions and Future Work

References

1. S. L. Devadoss and J. O'Rourke. *Discrete and computational geometry*. Princeton University Press, 2011.
2. J. O'rourke. *Art gallery theorems and algorithms*, volume 57. Oxford University Press Oxford, 1987.