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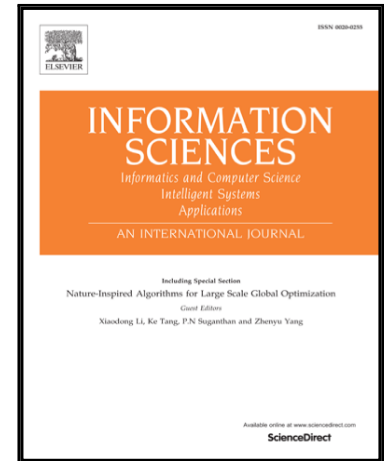
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Reverse View Field Nearest Neighbor Queries

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Abstract

In this paper, we introduce a novel type of spatial query called the **Reverse View Field Nearest Neighbor (RVFNN) query**. To process the query, we propose two query processing methods on an R^* -tree: (1) $RVFNN$ query processing on a sector-based R^* -tree and (2) $RVFNN$ query processing on an origin-based R^* -tree. In addition, we propose a new type of spatial data index structure called the View Field R-tree (VFR -tree) and a search method for $RVFNN$ queries on the VFR -tree. The VFR -tree overcomes the limitations of the R^* -tree by considering both origins and sectors. We carry out various experiments to evaluate the performance and verify the efficiency of the proposed methods.

Keywords: Spatial Database, Reverse View Field Nearest Neighbor Query, Smart Surveillance Systems

1. Introduction

With the constant growth of location detection technologies such as *GPS*, various location based services (*LBSs*) have been developed and improved. In *LBSs*, traditional spatial queries such as the nearest neighbor query [2, 3, 5, 10, 13] and range query [4, 12] find appropriate data objects based on the given query location. The nearest neighbor query finds the nearest data object to a

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