

SC-LSH: An Efficient Indexing Method for Approximate Similarity Search in High Dimensional Space

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Abstract : Locality Sensitive Hashing (LSH) is one of the most promising techniques for solving nearest neighbour search problem in high dimensional space. Euclidean LSH is the most popular variation of LSH that has been successfully applied in many multimedia applications. However, the Euclidean LSH presents limitations that affect structure and query performances. The main limitation of the Euclidean LSH is the large memory consumption. In order to achieve a good accuracy, a large number of hash tables is required. In this paper, we propose a new hashing algorithm to overcome the storage space problem and improve query time, while keeping a good accuracy as similar to that achieved by the original Euclidean LSH. The Experimental results on a real large-scale dataset show that the proposed approach achieves good performances and consumes less memory than the Euclidean LSH.

Keywords : approximate nearest neighbor search, content based image retrieval (CBIR), curse of dimensionality, locality sensitive hashing, multidimensional indexing, scalability

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