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## A Logarithmic-Complexity Algorithm for Nearest Neighbor Classification Using Layered Range Trees

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### ABSTRACT

Finding Nearest Neighbors efficiently is crucial to the design of any nearest neighbor classifier. This paper shows how Layered Range Trees (LRT) could be utilized for efficient nearest neighbor classification. The presented algorithm is robust and finds the nearest neighbor in a logarithmic order. The proposed algorithm reports the nearest neighbor in  $O(k \log n)$ , where  $k$  is a very small constant when compared with the dataset size  $n$  and  $d$  is the number of dimensions. Experimental results demonstrate the efficiency of the proposed algorithm.

### KEYWORDS

Nearest Neighbor Classifier; Range Trees; Logarithmic Order

### Cite this paper

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