

An Examination of Fast Similarity Search Trees with Gating

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Abstract

The emergence of complex data objects that must be indexed and queried in databases has created a need for access methods that are both generic and efficient. Traditional search algorithms that only check specified fields and keys are no longer effective. Tree-structured indexing techniques based on metric spaces are widely used to solve this problem. Unfortunately, these data structures can be slow as the computational complexity of computing the distance between two points in a metric space can be high.

This thesis will explore data structures for the evaluation of range queries in general metric spaces. The performance limitations of metric spaces will be analyzed and opportunities for improvement will be discussed. It will culminate with the introduction of the Fast Similarity Search Tree as a viable alternative to existing methodologies.