

[R-Trees: A Dynamic Index Structure for Spatial Searching.](#)

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Summary:

R tree to me seems similar to B tree, the difference is just that it contains the n dimensional object in the small rectangle in the leaf node, so I believe that R tree is a kind of generalization of B tree with a multidimensional object support. The underlying assumption of an R-tree is that there is a spatial database which consists of a collection of tuples representing spatial objects, and each tuple has a unique identifier which can be used to retrieve it.

In considering the performance of an R-tree, the concepts of coverage and Overlap are important. Coverage is defined as the total area of all minimum bounding rectangles of all leaf nodes, and overlap is defined as the total area contained within two or more leaf nodes.

Comments:

No doubt the generalized concept of B tree used in the R tree: Dynamic Index Structure seems to be powerful; I think R tree is a nice structure for implementing index on the spatial objects. Concept of enclosing data objects in bounding rectangles and using it as a leaf node is good and reasonable. The three different mechanism used for the splitting of the node in the case of insertion is appreciable and innovative.

How ever in search mechanism if there are overlapped areas then there can be more than one node as a result. Search mechanism doesn't explain as which overlapped node should be considered as the result.

Obviously, efficient searching demands that both overlap and coverage be minimized, although overlap seems to be the more critical of two issues.

For update operation, the index records are deleted, updated and then re inserted, so that it finds its way to the right place in the tree. This mechanism can be replaced with the better one.

The tests are done only on the 2 dimensional data. But solution claims to work good in multidimensional data also. It should have been some tests with multidimensional data too.

Also the paper doesn't contain the reference of the resources which discuss the general concepts of the spatial object storage mechanism.