X-tree

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This article is about a tree data structure for storing data in multiple dimensions. For the XTree file manager, see XTree.

This article **provides insufficient context for those unfamiliar with the subject**. Please help improve the article with a good introductory style. *(October 2009)*

In computer science, an **X-tree** (for *eXtended node tree*[1]) is an index tree structure based on the R-tree used for storing data in many dimensions. It appeared in 1996,[2] and differs from R-trees (1984), R+-trees (1987) and R*-trees (1990) because it emphasizes prevention of overlap in the bounding boxes, which increasingly becomes a problem in high dimensions. In cases where nodes cannot be split without preventing overlap, the node split will be deferred, resulting in **super-nodes**. In extreme cases, the tree will linearize, which defends against worst-case behaviors observed in some other data structures.

References [edit]

1. ^ Selçuk Candan, K.; Luisa Sapino, Maria (31 May 2010). Cambridge University Press, ed. *Data Management for Multimedia Retrieval*.
2. ^ Berchtold, Stefan; Keim, Daniel A.; Kriegel, Hans-Peter (1996). "The X-tree: An Index Structure for High-Dimensional Data". *Proceedings of the 22nd VLDB Conference* (Mumbai, India): 28–39.

v · t · e	**Tree data structures**
Search trees (dynamic sets/associative arrays)	2–3 · 2–3–4 · AA · (a,b) · AVL · B · B+ · B* · B^x · (Optimal) Binary search · Dancing · HTree · Interval · Order statistic · (Left-leaning) Red-black · Scapegoat · Splay · T · Treap · UB · Weight-balanced
Heaps	Binary · Binomial · Fibonacci · Leftist · Pairing · Skew · Van Emde Boas
Tries	Hash · Radix · Suffix · Ternary search · X-fast · Y-fast
Spatial data partitioning trees	BK · BSP · Cartesian · Hilbert R · *k*-d (implicit *k*-d) · M · Metric · MVP · Octree · Priority R · Quad · R · R+ · R* · Segment · VP · **X**
Other trees	Cover · Exponential · Fenwick · Finger · Fusion · Hash calendar · iDistance · K-ary · Left-child right-sibling · Link/cut · Log-structured merge · Merkle · PQ · Range · SPQR · Top

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