



EC504 Project

Comparative Data Structures



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Plan for the Project

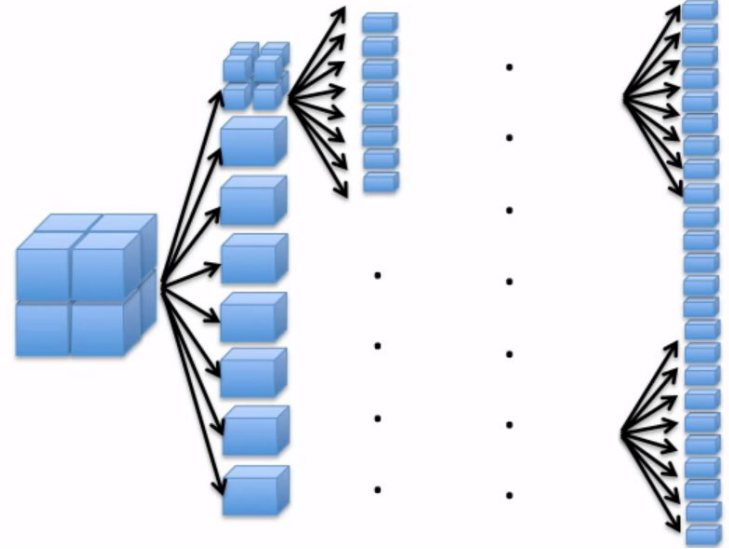
- Implement two data structures: Octree and K-d trees
- Use the data structures to perform a Nearest Neighbor Search
- Compare the performance of the data structures over a dataset representing a 3D space and then compare performance over a dataset representing a 2D space
 - Compare efficiency of inserting, deleting and searching the nearest point

Github repo: [acastronuovo5/EC504Project](https://github.com/acastronuovo5/EC504Project)

Octree

A tree where each node can have at most 8 children.

- Used to store 3D points and partition 3-dimensional spaces
- Some applications include:
 - 3D computer graphics
 - Color Quantization
 - Finding nearest neighboring objects in 3D space



K-D Tree

A K-D Tree(also called as K-Dimensional Tree) is a binary search tree where data in each node is a K-Dimensional point in space. In short, it is a space partitioning data structure for organizing points in a K-Dimensional space.

