Geometric Range Search

kd-Tree: Structure

- Construction

θ7-C-θ3

Junhui DENG

God found himself by creating.

deng@tsinghua.edu.cn

KdTree* buildKdTree (P , d)

```
❖ // construct a 2d-(sub)tree for point (sub)set P at depth d

  if ( P == {p} ) return CreateLeaf(p)  //base

  root = CreateKdNode()

  root->splitDirection = Even(d) ? VERTICAL : HORIZONTAL

  root->splitLine = FindMedian( root->splitDirection, P )  //O(n)!

  ( P₁, P₂ ) = Divide( P, root->splitDirection, root->splitLine )  //DAC

  root->lChild = buildKdTree( P₁, d + 1 )  //recurse

  root->rChild = buildKdTree( P₂, d + 1 )  //recurse

  return( root )
```