
KD - Trees

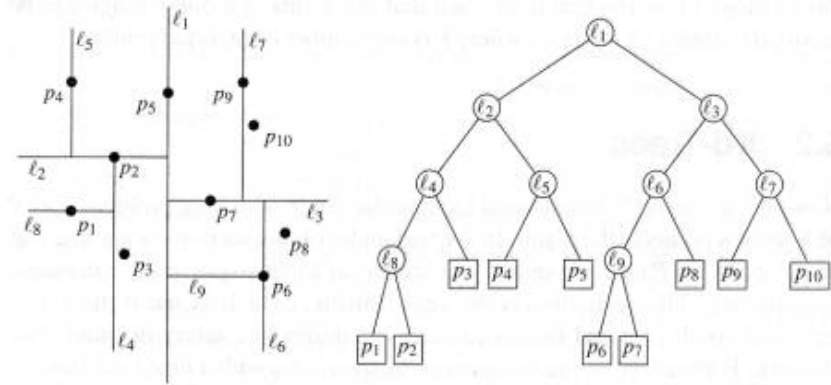
analysis and demo

Vitaly and Gautam (Team Forest)

Intro



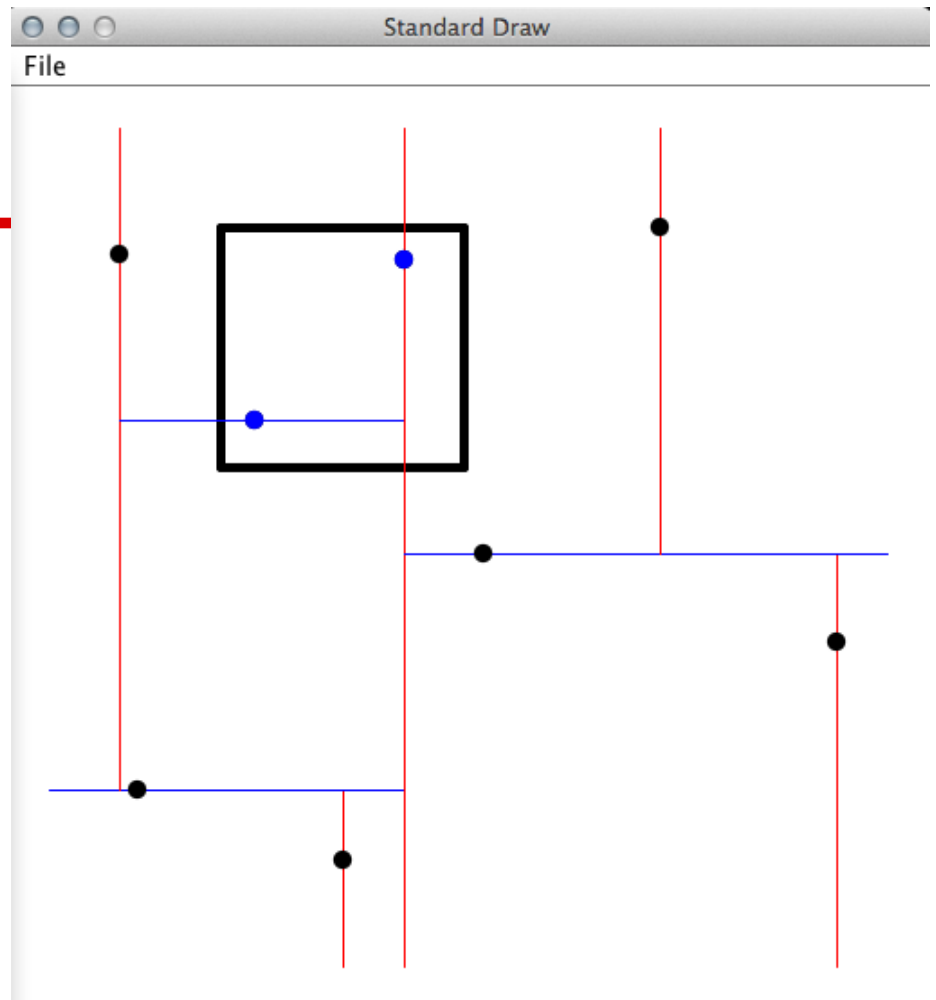
- usefull: Range Search!
- complexity: $O(n^{1-1/d}+k)$
(query)
- build: $O(n \log n)$...
median
- store: $O(n)$



Demo - K2 Tree

- Plot points in 2D space
 - Press “enter”
 - click and drag to create query boxes
-

Lets Try It!



Analysis

Brute-force search vs. Kd-tree search

```
Vitalys-MacBook-Air:CG_Project VASpro$ java experiment 10000  
Time Taken by Brute Force 9459000  
Time Taken by KDTree 243000
```

$O(n)$ vs. $O(\sqrt{n})$

Plot

