

# Assignment 5

## CSCI-4963/6962: Geometric Algorithms

Due: Tuesday, March 21, 2000

The focus of this programming assignment is orthogonal range searching. You must implement 2-dimensional kd-trees. The implementation can be done in the language and platform of your choice, and you may use an existing binary search tree implementation.

1. Implement the construction algorithm as well as the query algorithm for the kd-tree.
2. Test the algorithm by randomly generating sets of points in the plane. You can assume all points are in general position.
3. You must hand in a printed copy of your computed results for four sets of points, with two query ranges for each. For each point set and each of its query ranges, graphically show the input points, the query range, and the points returned by the query.
4. Give the actual running times of the algorithms for different numbers of random points.
5. Your source code should be commented and handed in by placing it in the RCS directory

`/dept/cs/geomalg/submit/<your-RCS-user-id>.`

*Assignments are due at the beginning of class on March 21, and are to be done individually. Late assignments incur a 10% penalty. Assignments more than a week late will receive no credit.*