Computational Geometry — Spring 2001 — Dan Halperin

Final Assignment (Implementation) and Oral Exam

1 Final Assignment

You are required to write a program to solve the following problem. Given a collection P of points in the plane and a bounding box of P, preprocess them to efficiently answer the following queries. A query consists of a real number $r > 0$ and two points p_1, p_2, and it asks to plan a motion for a disk of radius r centered at p_1 towards the location where its center coincides with p_2. During the motion the disk should not overlap any point in P. Moreover, at each point along the path the disk should be as far as possible from the point(s) closest to it. You can use ready-made parts of CGAL, for example, for computing the Voronoi diagram of P (this is not done directly but through the Delaunay triangulation), for constructing a DCEL of the diagram, etc.

An example program which computes the Delaunay triangulation of a set of points and stores it in a DCEL will be supplied. More details on the assignment and its submission will be given in class.

Submission date of the final assignment: **Sunday, July 15th, 2001**.

2 Oral Exam

Oral exams will be held in the third week of July 2001, 15–19/7/2001. The material for the exam is the material covered in class together with your own final assignment. When you submit your final assignment make sure to fix a date for your oral exam.