

# CS531 Computational Geometry

## Problem Set 4

### Trapezoidal Maps

Handed out: Wednesday, February 15

Due: Wednesday, February 22

#### **Problem 1. Update**

Specify the update operation for a trapezoidal decomposition and the associated search graph. Describe all cases using English or pseudo-code.

#### **Problem 2. Intersection**

Explain how to extend trapezoidal maps to handle intersecting input segments. The segment insertion routine finds the intersection points with the segments in the map, splits the intersecting segments, and updates the trapezoidal map. Describe the algorithm in English with a diagram.