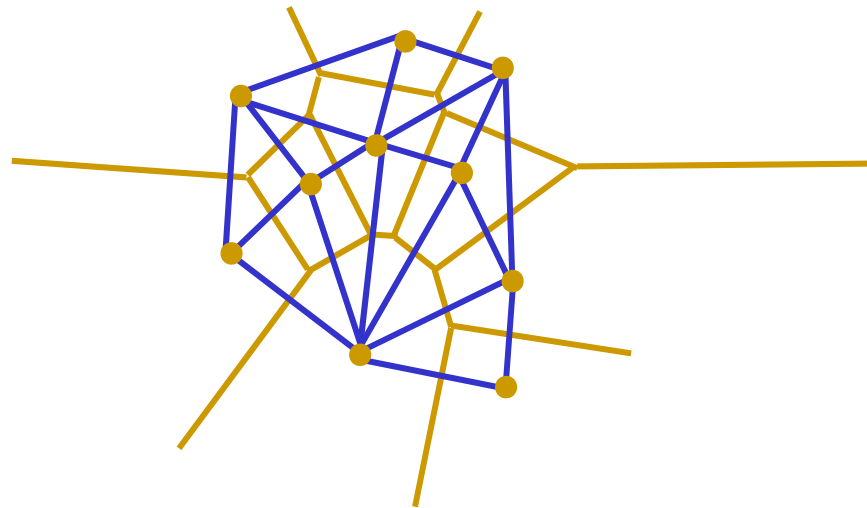

CMPS 3120/6120

Computational Geometry

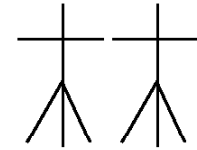
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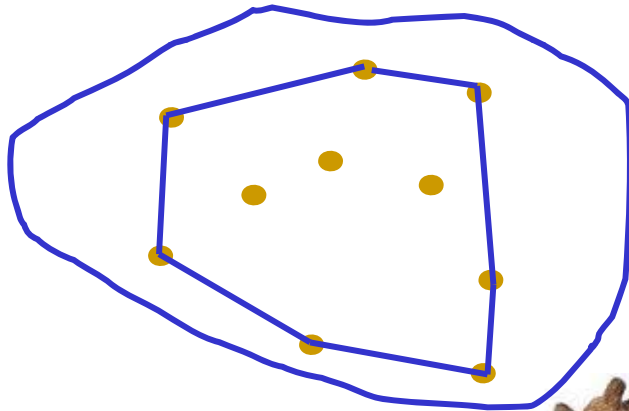
Computational Geometry



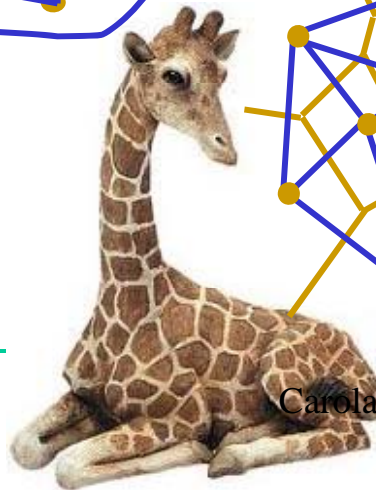
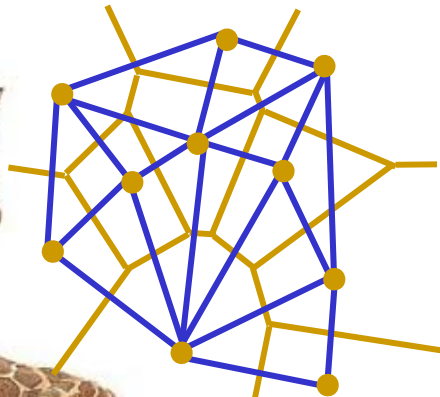
Algorithms and data structures for geometric objects

Convex hull:

Snap rubber band tight around pins

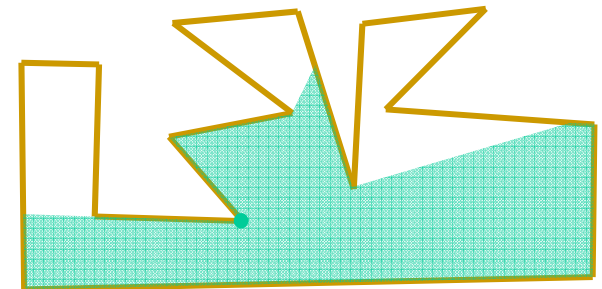


Voronoi diagram &
Delaunay triangulation:
Partition plane into regions
closest to post offices



Art gallery:

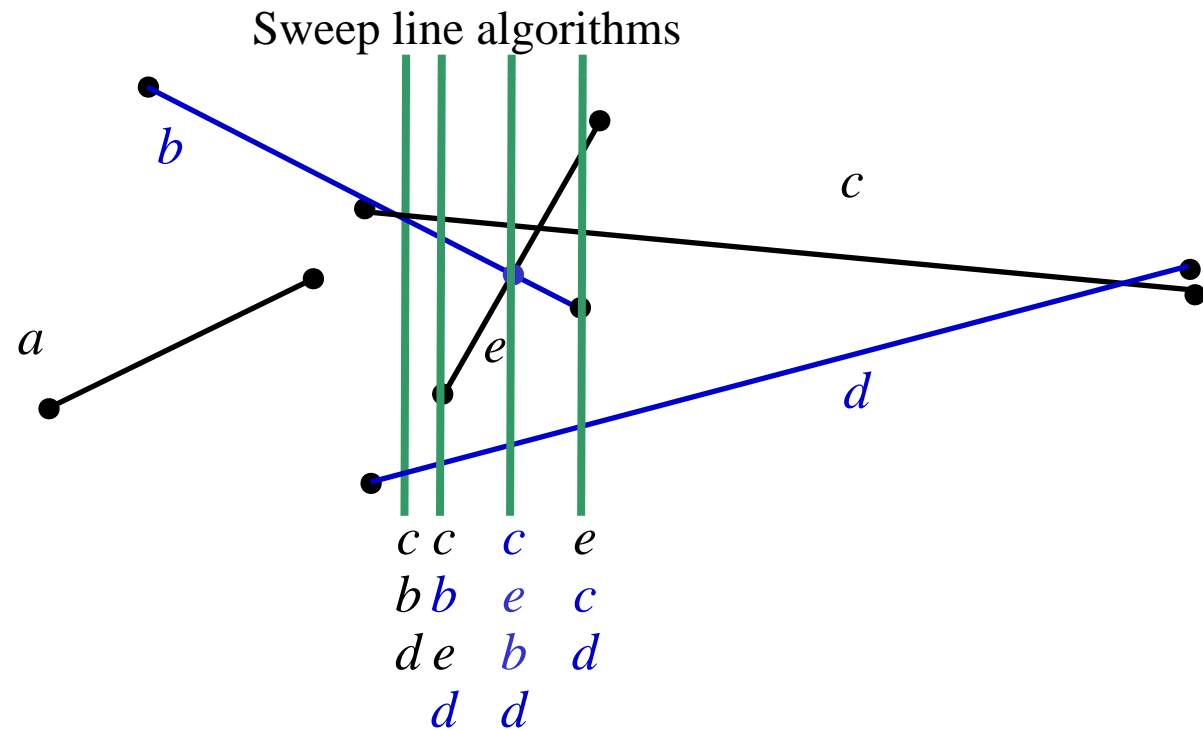
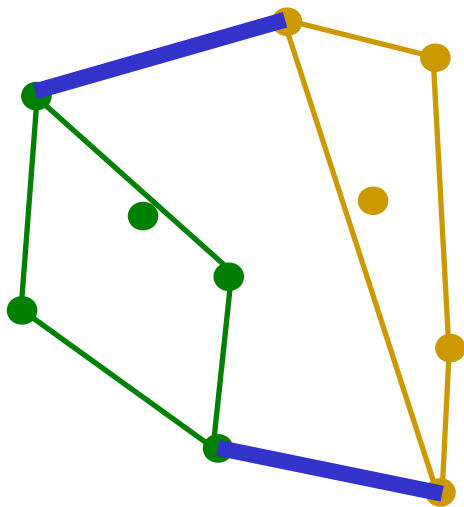
Guard art gallery with few guards



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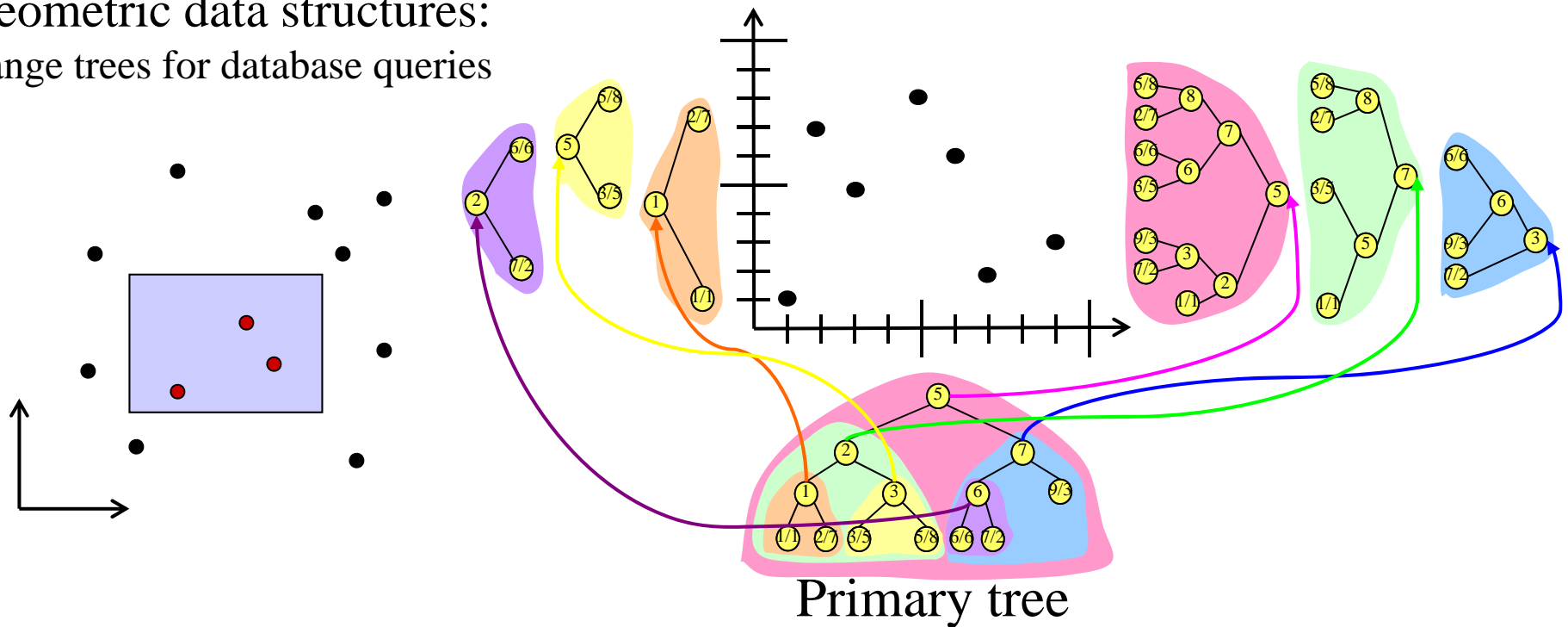
Introduction to Geometric Algorithms

Algorithm design techniques:
Divide and conquer



Introduction to Geometric Algorithms

Geometric data structures:
Range trees for database queries



CMPS 3120/6120 Computational Geometry

Related areas:

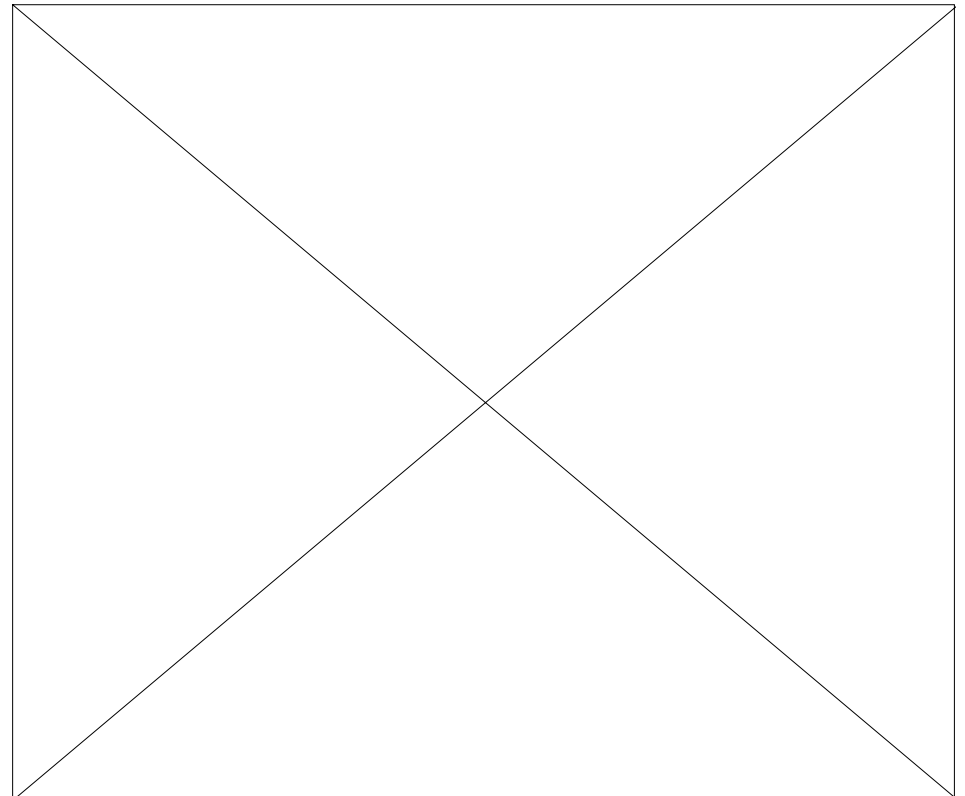
Graph theory, combinatorics, topology

Applied areas:

Databases, sensor networks, robotics,
computer graphics

Prerequisites:

Basic programming background or
mathematics background
(Email me for prerequisite override.)



D. Ataria, G. Rote, "Configuration Space Visualization",
Symposium on Computational Geometry, 2012

Class webpage:

www.cs.tulane.edu/~carola/teaching/cmeps3120-6120/spring13