

CSCI-4290/6290: Robot Motion Planning
Lecture 3: September 6, 2005
Geometric Representations, Configuration Space

Announcements

Questions 1–4 of Homework Assignment 1 are due on Friday, September 9.

Today's Class

In the last class, we looked at geometric representations of 2D obstacle regions. Today we explore ways to represent 3D obstacle regions. We will then continue our discussion of configuration space and configuration space obstacles.

1. Representations of polyhedra, 3D surfaces, and quadric surfaces.
2. Configuration space.
3. Computing the configuration space obstacle for a robot in 2D. We will focus primarily on the case of a translating robot, and briefly consider a robot that can translate and rotate.
4. Configuration space of articulated robots.

Reading

Chapter 3 and Appendix F, Choset et al.

Chapters 3 and 4, LaValle.

Next Class

Geometric transformations.