

CSCI-4290/6290: Robot Motion Planning
Lecture 16: October 21, 2003
Nonholonomic Motion Planning

Announcements

- For graduate students taking CSCI-6290: Please send me email indicating your top choices of (sets of) papers for class presentation by Thursday, October 23.
- The midterm exam is on Tuesday, October 28 in class from 12:00pm to 1:50pm. It will be a closed book and closed notes exam.
- HW 5 will be handed out on Friday.

Today's Class

Today we look at *nonholonomic robots* and techniques to perform motion planning for such systems. The primary example of nonholonomic robots we will consider are car-like robots. Other related systems are tractor-trailers, hovercraft, and satellites.

1. Nonholonomic robots and constraints
2. Dubins paths, Reeds and Shepp's paths
3. Maneuvers for a car-like robot
4. Two-phase nonholonomic motion planning

Reading

Chapter 12, *Fundamentals of Mobile Robotics*, by Wes Huang.

Chapters 14 and 15, *Planning Algorithms* by LaValle.

Chapter 9, Latombe. (optional)

Next Class

Nonholonomic motion planning