

CSCI-4290/6290: Robot Motion Planning
Lecture 15: October 17, 2003
Rapidly-Exploring Random Trees

Announcements

- Assignment 4 is due at the beginning of class on October 21.
- 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.

Today's Class

Today we look at a recent probabilistic planning technique based on *rapidly-exploring random trees* (RRTs). RRTs are especially useful for nonholonomic motion planning and kinodynamic planning.

1. Holonomic and nonholonomic robots
2. Rapidly-exploring random trees
3. Bidirectional RRTs

Reading

Chapter 7.3.2, Choset et al.

Chapter 6.6, *Planning Algorithms* by LaValle.

Chapter 9, Latombe. (optional)

Additional References

"Randomized Kinodynamic Planning", S. M. LaValle and J. J. Kuffner, *International Journal of Robotics Research*, Volume 20, Number 5, pages 378–401, May 2001.

Next Class

Nonholonomic motion planning