

CSCI-4965/6963: Robot Motion Planning
Lecture 15: October 22, 2001
Rapidly-Exploring Random Trees

Announcements

- Assignment 4 is due today.
- Graded midterm exams will be available Tuesday, October 23.

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 4.6, *Motion Strategy: Algorithms and Applications* by Steven M. LaValle. Available on the course web page.

Additional References

S. M. LaValle and J. J. Kuffner, "Rapidly-Exploring Random Trees: Progress and Prospects", In *Algorithmic and Computational Robotics: New Directions*, Bruce R. Donald, Kevin M. Lynch, and Daniela Rus (editors), pages 293–308, A. K. Peters, Natick, Massachusetts, 2001.

Next Class

Nonholonomic motion planning