

CSCI-4965/6963: Robot Motion Planning
Lecture 14: October 18, 2001
Probabilistic Roadmaps

Announcements

- Assignment 4 is due on Monday, October 22 at the beginning of class.
- For graduate students taking CSCI-6963: Please send me email indicating your top three choices of (sets of) papers by Tuesday, October 23. Please see the web page indicating the papers that have already been selected.

Today's Class

Today we continue our discussion of the basic *probabilistic roadmap* technique and look at variants of the PRM method.

1. Probabilistic roadmaps (PRMs)
2. Learning (or preprocessing) phase: construction step, expansion step
3. Query phase
4. PRM variants: Obstacle-Based PRM, Medial Axis PRM

Reading

L. E. Kavraki, P. Švestka, J.-C. Latombe, and M. H. Overmars, "Probabilistic Roadmaps for Path Planning in High-Dimensional Configuration Spaces", *IEEE Transactions on Robotics and Automation*, Vol. 12, No. 4, pages 566–580, August 1996.

Additional References

N. M. Amato and Y. Wu, "A Randomized Roadmap Method for Path and Manipulation Planning", IEEE International Conference on Robotics and Automation, pages 113-120, Minneapolis, MN, April 1996.

Next Class

Rapidly-exploring random trees (RRTs)