

CSCI-4965/6963: Robot Motion Planning
Lecture 27: December 6, 2001
**Computational Complexity of Path Planning,
and Lazy PRM**

Announcements

- Any updates to your course project report, documentation, or code must be completed and submitted by 2:00pm on Friday, December 7.

Today's Class

Today we begin by discussing the computational complexity of motion planning tasks, and then discuss another PRM variant called the Lazy PRM.

1. Computational complexity of motion planning: Several theoretical results have shown that path planning is an inherently difficult problem. These results suggest that the complexity of path planning increases exponentially with the dimension of the configuration space.
2. Lazy PRM: This is a single query PRM variant that attempts to improve performance by reducing the number of collision checks.
3. Course review

Reading

Chapter 1.6, Latombe.

References

Path Planning Using Lazy PRM, R. Bohlin and L.E. Kavraki, *IEEE International Conference on Robotics and Automation*, pages 521–528, San Francisco, April 2000.