

CSCI-4965/6963: Robot Motion Planning
Lecture 23: November 19, 2001
**Robot Map Building and Localization,
and Protein Folding**

Announcements

- The course project due date is Thursday, November 29. Hope you are making good progress on your final course projects!
- You should create a web page for the project and make your project report available there.

Today's Class

1. Map building and localization for mobile robots:

Edward Carlson will talk about motion strategies for *map building and localization* by a mobile robot that uses a range sensor in an unknown indoor environment with a polygonal layout.

2. Protein folding:

Seung-mok Yoo will describe recent work that uses probabilistic roadmap planners to identify plausible folding pathways for proteins with known folded structure. Predicting *protein folding* is important since the folded structure of a protein is closely related to its function.

References

Planning Robot Motion Strategies for Efficient Model Construction. H. H. Gonzalez-Banos, E. Mao, J. C. Latombe, T. M. Murali, and A. Efrat. In *Robotics Research: The Ninth International Symposium*, John M. Hollerbach and Daniel E. Koditschek (editors), pages 345–352, Springer-Verlag, 2000.

Using Motion Planning to Study Protein Folding Pathways, Guang Song and Nancy M. Amato. Proceedings of the *5th International Conference on Computational Molecular Biology (RECOMB)*, pages 287-296, April 2001.

Next Class

Assembly planning, and manipulation planning.