

CSCI-4961/6961: 3D Computer Graphics
Class 13: October 12, 2006
Bezier Splines and Hermite Splines

Announcements

- *Motion Planning with Rigid and Deformable Models*, Dinesh Manocha, University of North Carolina at Chapel Hill, CS Seminar today, 4:00 p.m. in JEC 3117. (Refreshments at 3:30 p.m.)
- Project 2 is due by 11:59:59pm on Monday, October 16.
- HW 3 is due by 3:00pm on Wednesday, October 18.
- Midterm Exam is in class on Thursday, October 19.

Today's Class

Today we will first focus on Bezier splines. Bezier splines are not only mathematically elegant, but also important since many polynomial splines can be converted to equivalent Bezier spline forms. We will then look at interpolating splines such as Hermite splines and Catmull-Rom Splines.

1. Bezier splines and their properties
2. Recursive subdivision to render Bezier splines
3. OpenGL evaluators to generate Bezier splines, and example code (`bezier_curve.cpp`)
4. Interpolating spline curves
5. Hermite splines, and conversion of Hermite splines to Bezier splines
6. Catmull-Rom splines

Reading

Chapter 8.8–8.11 and 8.18 of Hearn and Baker.
Chapter 12 of the OpenGL red book.

Activity

Try the interactive spline applets at <http://www.ibiblio.org/e-notes/Splines/Intro.htm>.

Next Class

B-spline curves.