

CSCI-4967: Three-Dimensional Computer Graphics
Class 12: October 12, 2004
Bezier Splines and Hermite Splines

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.ddt.pwp.blueyonder.co.uk/evgeny/Intro/Intro.htm>.

Next Class

B-spline curves.