

CSCI-4967: Three-Dimensional Computer Graphics
Class 13: October 14, 2004
B-Splines and NURBS

Announcements

- Project 2 is due by 11:59:59pm on Friday, October 15.
- Homework 3 is due at the beginning of lecture on Monday, October 18.
- The Midterm exam is on Thursday, October 21 from 10:00am to 11:50am in West Hall Auditorium (200 level). There will be no makeup exam if you miss this exam.

Today's Class

Today we will first study B-Splines, which are approximating splines, and then look at NURBS.

1. B-spline curves and their properties
2. Conversion of cubic B-splines to cubic Bezier splines
3. Non-uniform B-splines
4. Rational splines
5. NURBS (Non-Uniform Rational B-Splines): These are the most general form of splines we will discuss. They provide an exact representation for conics and are invariant to perspective transformations.

Reading

Chapters 8.12 and 8.15–8.18 of Hearn and Baker.
Chapter 12 of the OpenGL red book.

Next Class

Spline surfaces, and Midterm review.