

CSCI-4967: Three-Dimensional Computer Graphics
Class 7: September 23, 2004
3D Rotations, Quaternions

Today's Class

There are several ways of representing orientations and rotations of objects in 3D, some of which are more convenient to use than others. Today we examine some of these representations.

1. Properties of 3D rotations
2. XYZ fixed angle and ZYX Euler angle representations of rotation
3. Axis-angle representation of a rotation, about an arbitrary vector
4. Using quaternions for rotation
5. Transforming quaternions to rotation matrices and vice versa

Reading

Chapter 5.11 and Appendix A.6–A.7 of Hearn and Baker.

Next Class

HW 2 will be due on September 30 (new due date).
Shading and illumination.