

CSCI-4961/6961: 3D Computer Graphics  
Class 7: September 21, 2006  
**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 28 (new due date).  
Shading and illumination.