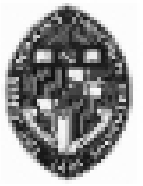
Computer Animation

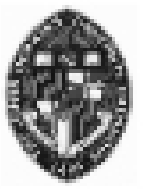
What is it?

- Sequence of computer-generated images
- Objects, lights, and cameras may be moving and changing over time
- May be generated off-line (as opposed to real-time)



What is it used for?

- **Fully computer-generated films (short or feature length)**
  - **entertainment**
  - **visualization of simulation data**
- **Special effects added to real camera footage**



Common Approaches

Key frame animation

Physically-based simulation

Motion capture

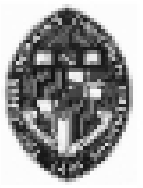
Key Frame Animation

Specify animation parameters at particular points in time

- **Positions and orientations of objects, lights, and cameras**
- **Non-rigid-body modifications in object geometry**
- **Non-geometric parameters, such as color and intensity of lights, focus of cameras, etc.**

Specify interpolation modes

- **None, linear, higher-order splines, etc.**



Hierarchical Specification

Hierarchical objects assigned parent/child relationships

- **Child object parameters specified relative to parent**
- **Interpolations performed on these relative parameters rather than absolute**

Often useful for articulated figures, such as humans or animals