

Course : T0553 / Multimedia System  
Year : 2015

# ANIMATION

## Session 05

# OUTLINE

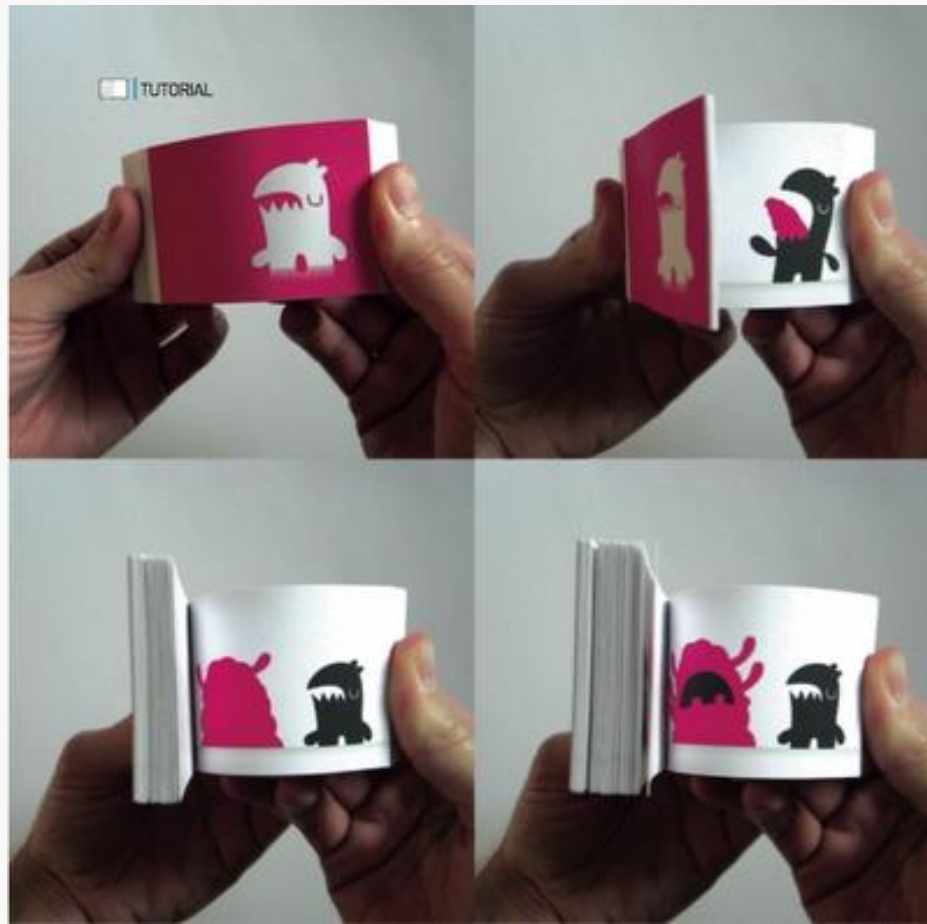
- Principles of Animation
- Animation by Computer
- Animation Technique
- Animation File Formats
- Guidelines for Animation

# Principles of Animation

- Animation is an object actually moving across or into or out of the screen.
- Animation is the primary source of dynamic action in multimedia presentation.
- Quickly changing the viewed image is the principle of an animatic, a flip book, or a zoetrope.

# Principles of Animation

- The example of flip-book



# Animation by Computer

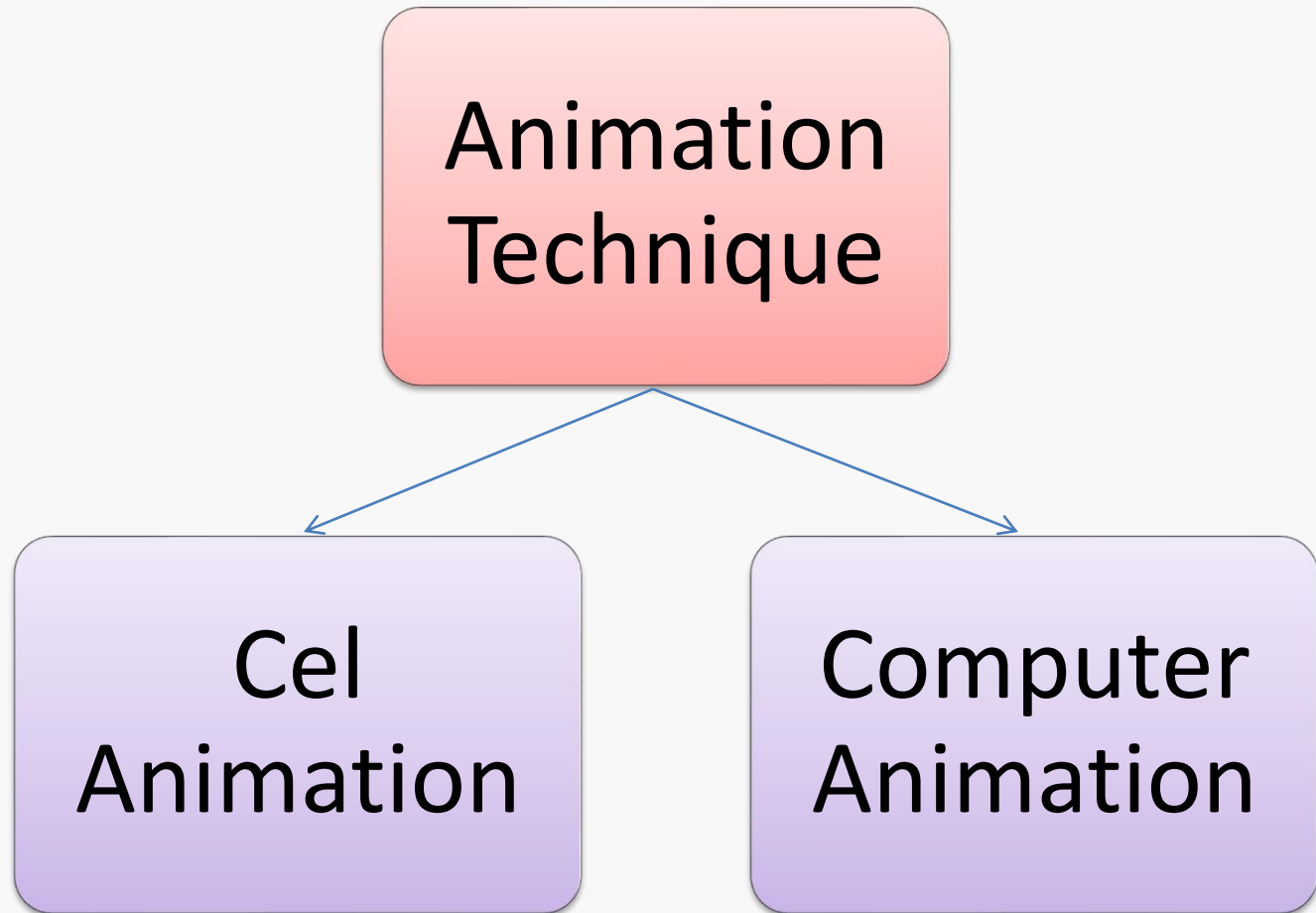
- There are technique to animate visual image :
  - The simplest animations : 2-D Animations
    - Example : the blinking word, a color cyclin logo
  - More complicated animations : 2<sup>1/2</sup> D Animations
    - Example : Embosing, shadowing, beveling and highlighting provide a sense of depth by raising an image

# Animation by Computer

- The most realistic animations : 3D Animations



# Animation Technique



# Animation Technique

- Cel Animation :
  - Cel animation artwork begins with **KeyFrames** ( The first and last frame of an action)
  - The series of frames in between the keyframes are drawn in a process called **tweening**.



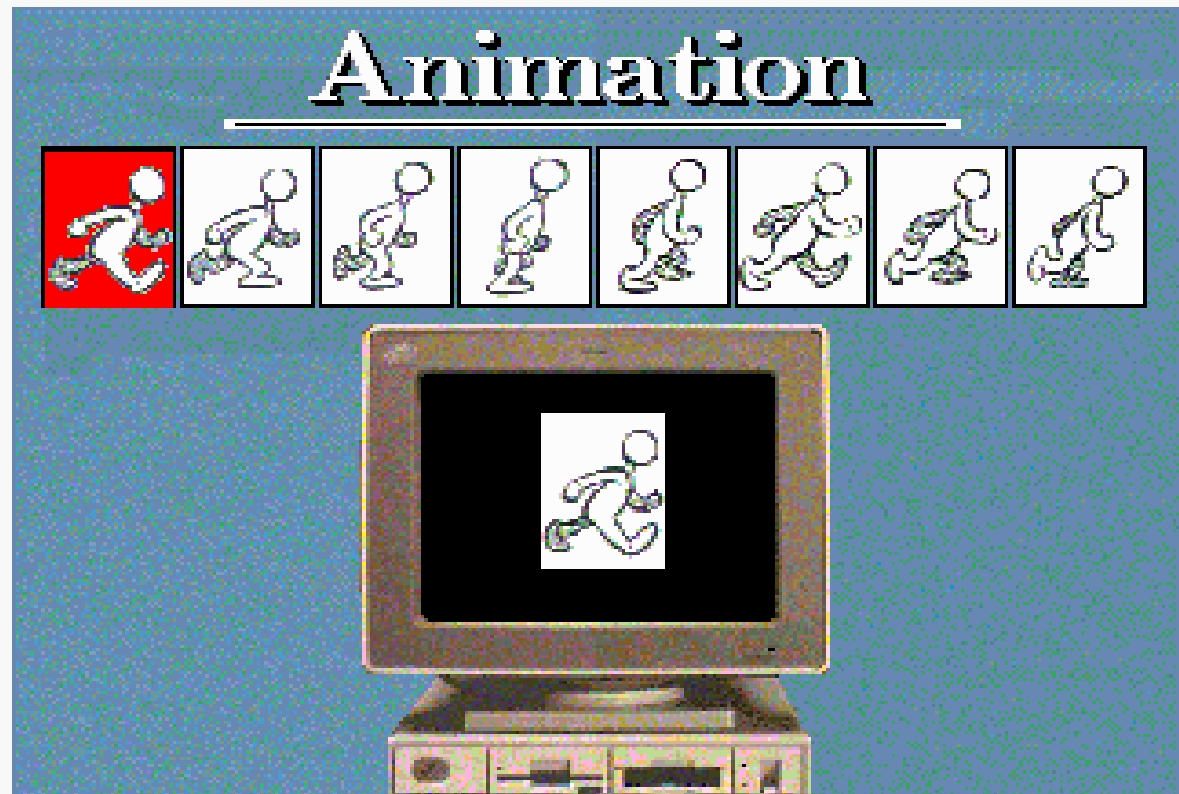
# Animation Technique

- Example of Cel Animation



# Animation Technique

- Example of Cel Animation



# Animation Technique

- Computer Animation
  - Employ the same logic and procedural concepts as cel animation.
  - The primary difference among animation software programs is in how much must be drawn by the animator and how much is automatically generated by the software
  - There are three different forms :
    - 2D, 2<sup>1/2</sup> D and 3D animation

# Animation Technique

- Computer Animation :
  - **Kinematics** : the study of the movement and motion of structures that have joints such as a walking man.
  - To animate a walking step -> need calculate the position , rotation, velocity and acceleration of all the joints and articulated parts invloved—knee, bend, hip,flex,etc

# Animation Technique

- Smith Micro's Poser understand human motion and inverse kinematics ; move an arm and the shoulders follow



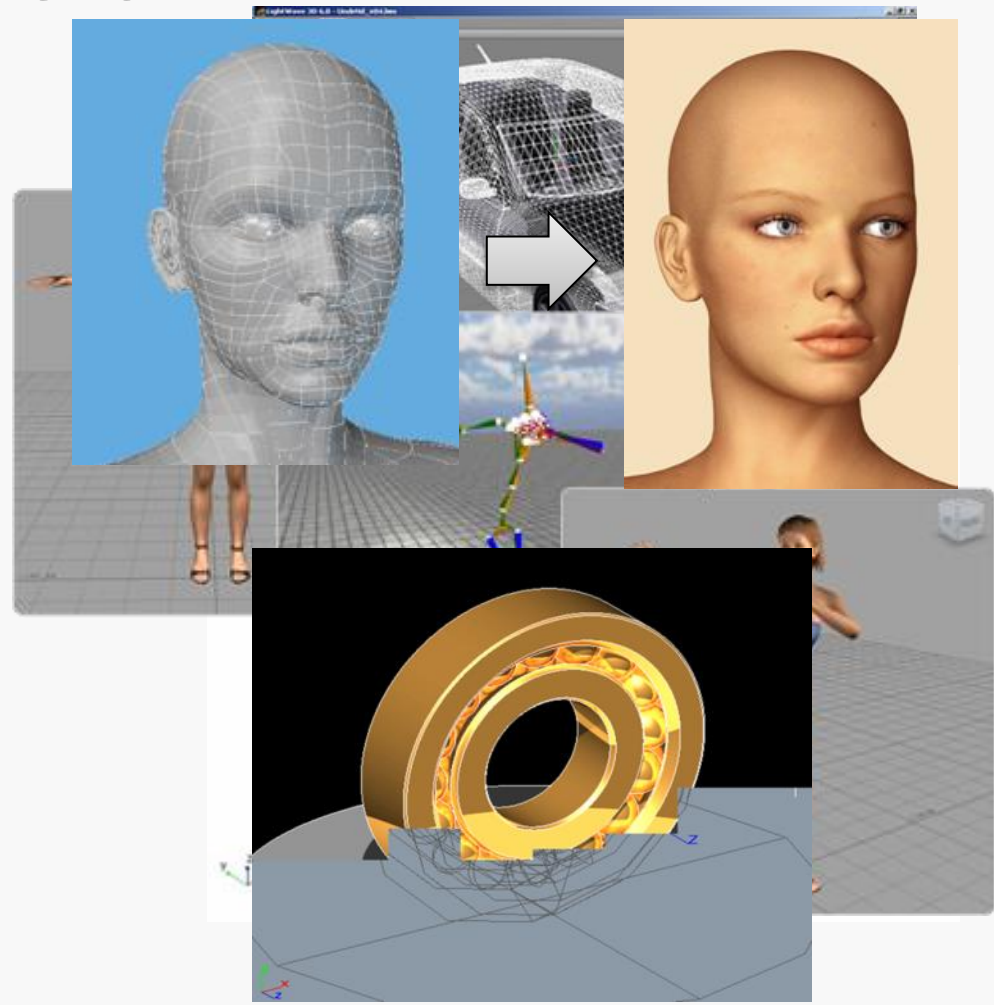
# Animation Techniques

## 3D Animation

Modeling

Animation

Rendering





# Animation Technique

- **Morphing** : is a popular effect in which image transforms into another.



# Animation Technique

- Example of Morphing :





# Animation File Formats

**DIR/DCR**

- Director

**FLI/FLC**

- AnimatorPro

**MAX**

- 3D Studio Max

**GIF**

- GIF89a

**FLA/SWF**

- Flash

# Guidelines for Animation

- Animation tips and Guidelines :
  - Don't forget the leaning curve
    - Animation program are typically more difficult to master than other software.
  - Design for delivery
    - To minimize animation file size :
      - Use simple backgrounds
      - Simplify and limit the number of objects
      - Limit the number of lights and the use of reflections and transparencies
      - Pick the best combination of file size and quality
      - Be sure to preserve an original uncompressed file

# Guidelines for Animation

- Animation tips and Guidelines (continue) :
  - Consider flip animation
    - An appropriate animation may be available at little or no cost
  - Consult the tradition
    - The staples of the animator's art will often ease the development process and enliven a digital production. Consider : cycles, holds, shooting on twos, tweening, stretch & squash, Ease In & Ease Out, Overshoot & overlapping motion

# SUPPORTING MATERIALIA

- [http://www.dack.com/web/flash\\_evil.html](http://www.dack.com/web/flash_evil.html)
- <http://www.pixar.com/>
- [http://freespace.virgin.net/hugo.elias/models/m\\_ik.htm](http://freespace.virgin.net/hugo.elias/models/m_ik.htm)
- [http://www.graphicsacademy.com/formatx\\_animation.php](http://www.graphicsacademy.com/formatx_animation.php)
- <http://www.siggraph.org/~rhyne/com97/com97-tut.html>

# Exercise

- There are two techniques to create animation. Explain them briefly!
- Which kind of effect that can be used to create a transformation of one image into another! Give the example!