Chapter 7

Animation

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.: Introduction to Animation

- Animation is defined as the **act of making something come alive**.
- It is concerned with the **visual or aesthetic aspect** of the project.
- Animation is an **object moving** across or into or out of the screen.
- Animation is possible because of a biological phenomenon known as persistence of vision and a psychological phenomenon called **phi**.
- In animation, **a series of images are rapidly changed** to create an illusion of movement.

- Animation can be rendered in:

  - **2D space** - 2-D animations are very simple and static.
  - **2½D space** - An illusion of depth is created through shadowing, highlighting, and forced perspective, though in reality the image rests in two dimensions.
  - **3D space** - Complicated and realistic animations are done in 3-D space.

.: Principles of Animation

- **Animation techniques**
  - Animation process
  - Cel and path animation
  - Computer animation

- **The <mark>steps to be followed</mark> in creating animation are:**
  - Organize the execution in a series of logical steps.
  - Choose an animation tool best suited for the job.
  - Build and tweak the sequences.
  - Post-process the completed animation.

- Cel animation
  - *Cel* animation is a technique in which a **series of progressively different graphics** are used on each frame of movie film.
  - The term "cel" is derived from the clear **celluloid** sheets that were used for drawing each frame.
  - Cel animation begins with **keyframes**
  - **Keyframes** refer to the first and the last frames of an action.
  - The frames in between the keyframes are drawn in the **tweening** process.
  - Tweening depicts the action that takes place between keyframes.
  - Tweening is followed by the pencil test.

.: Animation by Computer

- Computer animation is very similar to **cel animation**.
- The primary difference is in **how much must be drawn** by the animator and how much is automatically generated by the software.
- **Kinematics** is the study of the movement and motion of structures that have joints.
- **Inverse kinematics** is the process of linking objects, and defining their **relationship and limits**.
- **Morphing** is an effect in which a still or moving image is transformed into another.

.: Animation File Formats

- .dir and .dcr - Director files

- .fli and .flc - AnimatorPro files

- .max - 3D Studio Max files

- .pics - SuperCard and Director files

- .fla and .swf - Flash files

- .svg - scalable vector graphics files, which are new to HTML 5

.: Animation Tools

- Some animation tools are:
  - Adobe's Flash/Animate
  - AutoDesk's Maya
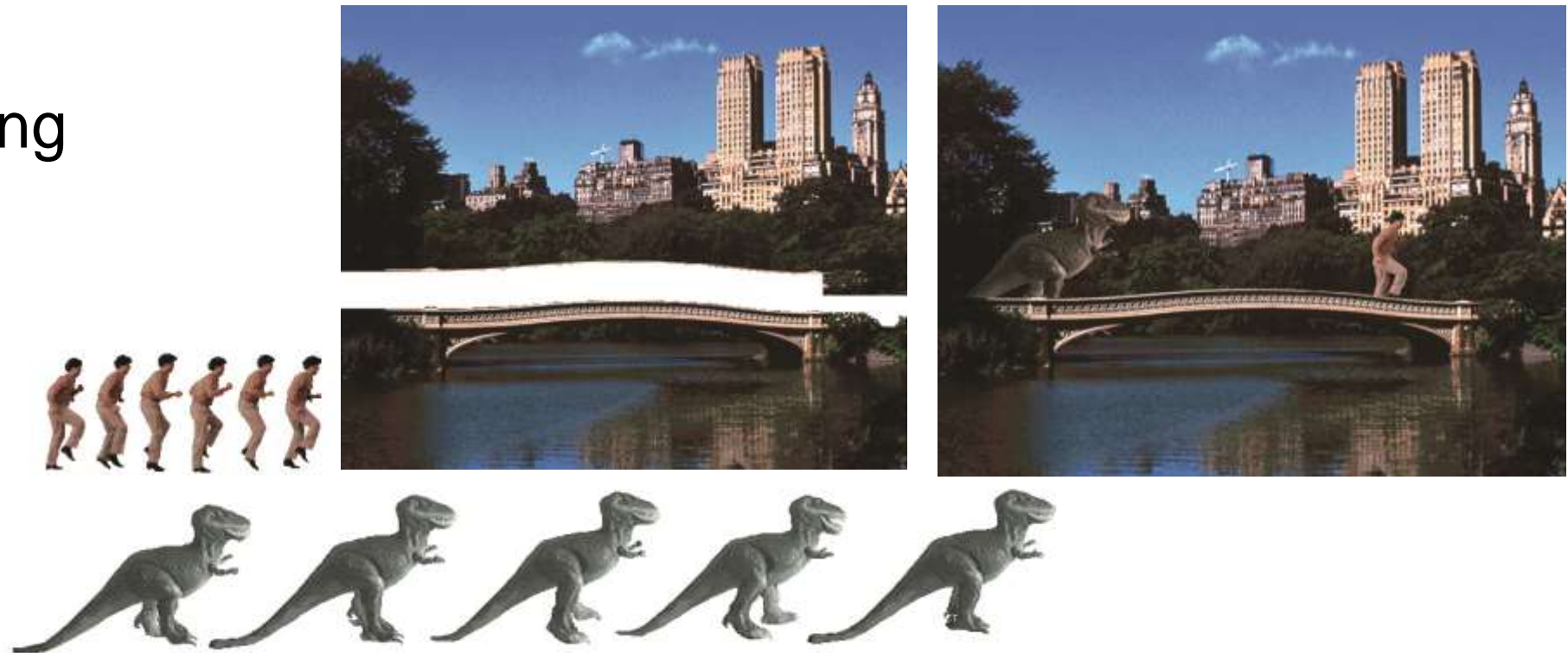 - NewTek's Lightwave
  - Papervision3D
  - GreenSock's TweenMax

- **GIF89a file format:**

  – It is a version of the GIF image format.

  – GIF89a allows multiple images to be put into a single file and then be displayed as an animation in the web browser.

  – Applications like Stone Design's GIFfun or ULead's GIF Animator are needed to create GIF89a animation.

- Modelling

- Animation

- Rendering