

Week 4

Lecture Outline

I. Storyboarding

A. Purpose

1. Drawing pictures helps you find out how you are going to develop the action of the film.
2. Blueprint for all people involved in the making of the film.

B. Beginning - Sketching

1. Sketch out one panel for each shot in a scene.
2. Complex scenes might require several panels.
3. Any change in camera position or scene requires a new panel.
4. Visual cues - Used to provide direction.
 - a. Arrows are used to indicate action in the frame.
 - b. Camera motion is indicated on the panels also.
5. Written descriptions are placed along side the panels, or lines of dialog.
6. Revise - Revise - Revise...

C. Making the Film - Details.

1. Every scene should be fully detailed including the following.
 - a. Background
 - b. Color scheme.
 - c. Characters
2. Using a stop watch, you can time out each sequence based on the storyboard.
 - a. Spoken dialog could be used as a rough timing guide.
 - b. Timing of the action should determine true timing of a scene.
3. Timing information should be attached to the each panel.
4. Used to compose the final edited picture.
 - a. Draw on small sticky notes.
 - b. Moving sticky notes allows you to replace shots and easily change your films structure without having to draw entire pages of storyboards again.
5. The storyboard should resemble the final film.
 - a. Obviously, a hand drawn storyboard won't match a CGI film.
 - b. The camera framing and view should be roughly equivalent between boards and the final film.

II. Hierarchical Animation

A. Transformation Hierarchies -

1. Technique

- a. Grouping an object to several nodes and then applying animation to the appropriate node.
- b. Objects typically need to translate, scale, and rotate, so nodes are made for each of these transforms.
- c. During animation, motion begins at the lowest node of the hierarchy and moves its way up.

2. Flexibility

- a. Pivot points can be set for each node/level.
- b. Allows for greater concentration on an individual animation parameter.
- c. Animation can be built up, one transformation at a time. Layering motion and action.
- d. Param Control can be used to isolate animatable transforms to each node.
- e. Allows you to move complex model structures with one node, by effecting all of it's descendant nodes.

3. Standard Hierarchical Structure.

- a. Top - Translate
- b. 2nd - Scale
- c. 3rd - Rotate
- d. 4th - Object

B. Hierarchy Setup

1. Evaluating your Animation Needs

- a. Representation of complex descendant structure through single nodes.

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- b. Types of motions necessary for the structure. (Planetary objects.)
- c. Local and Global coordinate system manipulation.
- 2. Grouping objects to themselves or others.
 - a. Creates another node in the SBD one level above the original object(s).
 - b. Node is selectable in the SBD, just like an object.
 - c. Node can be animated.
 - d. Animated Node is represented by parallelogram in SBD.
- 3. Renaming Nodes
 - a. Window -> Information Window
 - b. Select Node in SBD window.
 - c. Rename node in Name field of Info Window Dialog.
- 4. Parameter Control
 - a. Used to isolate animatable parameters.
 - b. Set only rotation to be animated in rotation node, etc....
 - c. Only parameters chosen in Param Control are animated, other transforms applied are taken as global(over every frame) not keyframed.
- 4. Action Window
 - a. Hierarchical nodes/objects are listed under their parent Node.
 - b. Items below a Node are considered descendant members of the Node, or children.

IV. Viewing and Converting Movies

- A. Animation -> Flipbook - Animation previewer that can playback sequences of Tiff, SGI, or PIX images.
 - 1. Allows for preview at specified frame rates.
 - 2. Opening sequences -
 - a. Animation -> Flipbook
 - b. Select first image in sequence.
 - c. Images load into RAM (If you have enough.)
 - 3. Menu Bar
 - a. Playback controls - small arrows on either side of square.
 - b. Control Icon - Arrow pointing upward, opens control panel.
 - 4. Control Panel
 - a. Options - Frame Rate
 - 1. 30 for NTSC
 - 2. 24 for Motion Picture
 - b. Books List - Lists books loaded
 - 1. Write Active- Saves a Flipbook with compression. No need to reload into RAM for subsequent playback.
 - 2. New Book - Open a new sequence as a book.
- B. Animation -> SGI Movie/QuickTime
 - 1. Application
 - a. SGI Movie player - Displays the sequence of images in movieplayer.
 - b. SGI Movie maker - Loads the sequence of images into moviemaker for simple editing.
 - c. **Create Movie** - Creates a movie from your image sequence.
 - 2. Movie Options
 - a. Compression
 - i. SGI
 - 1. None - Uncompressed SGI movie. (*Fine for final renders, impractical for tests. Playback performance isn't very reliable.*)
 - 2. MVC2 - Compressed SGI movie. (*Very good compression scheme, speedy decoding in real time. Best choice for tests.*)
 - 3. RLE - Compressed SGI movie - using RLE scheme. (*Essentially lossless, large file sizes.*)

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4. JPEG - Compressed using JPEG standard compression. *(Not very good for realtime decoding.)*
- ii. QuickTime
 1. QuickTime - Uncompressed QuickTime movie. *(Excellent choice for import into Avid or other MacOS NLE. Large file sizes. Realtime playback not reliable.)*
 2. QT A - Compressed QuickTime movie using the Animation codec. *(Not bad, Essentially Lossless. Large file sizes. No realtime playback.)*
 3. QT V - Compressed QuickTime movie using Video codec. *(Down and dirty compression scheme, good for tests, but plenty of artifacts make evaluation of fine detail hard.)*
- b. Scale Factor
 - i. Based on original render resolution.
 - ii. No scale makes a frame equivalent to the original input.
 - iii. NTSC video at $1/2 = 320 \times 240$
- c. Frame Rate
 - i. Motion Picture = 24 fps
 - ii. NTSC video = 30 fps
3. Input Sequence Parameters
 - a. From Frame - Start frame of the rendered sequence
 - b. To Frame - End frame of the rendered sequence.
 - c. By Frame - Step frequency, usually set to 1.
 - d. Extension Width - The width of the numbering extension.
 1. Used to filter images from the directory into the converted movie.
 2. Allows for decoding field rendered animation.