

## Moving Images Day 5

### Apple Motion

- Motion or After Effects?
  - Integration with Final Cut Studio apps
    - Easier with Motion
    - Requires export as Quicktime with After Effects
    - Not always required, so that may not matter
  - Different tools in each application
    - Most are in both, but there are some differences
    - Paint on video over time only in After Effects
    - Behavior-based generators only in motion
  - Cross-platform use
    - Motion is Mac-only
    - After Effects is available for Windows and Mac OS
- Starting a project in Motion
  - *File > New*
    - select correct preset
      - NTSC Video if finishing on SD DVD or using in a mini-DV based project
      - other presets as appropriate for final output
  - *Window > Layout > Standard*
    - or Control-U
    - the standard duration is 300 frames (10 seconds at 30 fps)
    - click on the clock in the lower right corner to toggle display between framecount and timecode
    - current time is shown in the bottom left of the project window, project duration in the bottom right
  - Set the duration before doing any editing
    - *Edit > Project Properties*
      - or Command-J
    - change the "duration" value - toggle to the right controls framecount/timecode display
    - or simply type the new duration in the duration display at bottom right of project window
  - File Browser shows available media from the file system (videos, still images, etc)
  - Library shows built in generators, filters, shapes, etc
  - Inspector controls various properties of the selected item
  - Project pane
    - shows the current point in the composition
    - drag media here to add to the composition
    - media is added starting at the current time if the composition is paused
    - media is added starting at 0:00 if the composition is playing
  - HUD
    - *Window > Show HUD*
      - or F7
    - provides some controls for the selected item
  - Timing Pane is hidden in Standard layout
    - *Window > Show Timing Pane*
      - or F6
    - Timeline Tab
      - shows all of the objects in the project over time
      - allows show/hide of objects
    - Keyframe Editor Tab
      - detailed view of keyframed attributes in the project
      - view can be toggled between different sets of keyframes
      - keyframes can be edited here or directly in the canvas
    - Audio Editor Tab
      - keyframes volume and pan for audio tracks
  - Project Pane is hidden in Standard layout
    - *Window > Show Project Pane*
      - or F5

- Layers Tab
    - allows reordering and editing of layered objects
  - Media Tab
    - displays all media used in project and allows selection of each object
  - Audio Tab
    - functions same as media tab, except for audio only
- Layers in Motion
  - Layers are shown in the Layers tab of the Project Pane
    - Show/Hide with the checkbox to at left
    - Groups contain layers
    - Drag groups or layers to reorder
    - Lock icon locks layers or groups to prevent editing
  - Layers over time are shown in the Timeline tab of the Timing Pane
    - Unlike Final Cut Pro, each layer can only have one object
    - Timeline shows what time range each layer occupies
    - Drag the end of a layer to change the time it covers
      - Video clips are are limited to their duration
      - Stills can cover an infinite amount of time
- Generators, Particle Emitters and Behaviors in Motion
  - Generators
    - Library objects that create solids or patterns
    - Some are animated
    - Accessed by clicking on the “Generators” section in the Library tab
    - Drag to the project just like other media to add
    - Adjust parameters in the Inspector or HUD window as needed
    - reorderable just like other objects
  - Particle Emitters
    - Library objects that use a large number of cell elements and an emitter (source) to create sophisticated animation effects
    - To add a premade particle emitter to a project, drag from the “Particle Emitters” section of the Library tab
    - Adjust parameters in the Inspector or HUD window as needed
    - Custom emitters are possible, look at the Motion manual for details
  - Behaviors
    - Behaviors animate objects without keyframes
    - Accessed in the “Behaviors” section of the Library tab
    - Drag to an object in the project to apply
    - adjust settings in the HUD after clicking on the behavior in the Timing or Layers tab
      - or in the “behavior” section of the Inspector for the object
    - Behaviors affect each other as well
      - alllows you to create a more complex animation
      - for example – Throw + Gravity can be used to make an object arc as if it's really being thrown and falling to the ground
    - Motion Tracking Behaviors allow you to make one object follow another
      - More complex Motion Tracking is possible, look at the Motion manual for details
- Animating in Motion
  - Recording
    - Motion allows for recording in real-time as you drag objects around the composition
    - To record
      - Set recording options
        - *Mark > Recording Options*
          - or Option-A
        - Keyframe Thinning
          - Off
            - generates a new keyframe every time a parameter changes
          - Reduced

- eliminates some keyframes during recording when they can be replaced with a smooth curve
    - Peaks Only
      - only creates keyframes at drastic changes
  - Don't record keyframes during playback
    - must be deselected to record while playing back composition
    - if selected, changes can only be made while paused
    - similar behavior to Final Cut Pro when unchecked
  - Record keyframes on animated parameters only
    - limits new keyframes to attributes that already have keyframes
    - similar behavior to Final Cut Pro when checked
- Click the record button at the bottom of the window
  - or "A" on keyboard
  - or Mark > Record Animation
- If recording during playback
  - click the play button to start playback
  - move the target object while the composition plays back to create keyframes
  - reduce unneeded keyframes after recording if required to smooth the animation
    - in the Keyframe tab, open the menu for each attribute
    - select "Reduce Keyframes..."
    - adjust the settings
      - Maximum Error Tolerance
        - increase to allow fewer keyframes
        - decrease to force closer tracking at the expense of smoothness
      - Smoothing Factor (frames)
        - increase for smoother animation
        - decrease for more accurate playback of every mouse movement
  - If not recording during playback
    - scrub along the timeline to desired time
    - move the object to set a keyframe
    - repeat as needed to set all keyframes
    - reduce keyframes shouldn't be required with this technique, but can be applied as above
- Animating in the Keyframe tab
  - Toggle the "Show" option to the desired set of attributes to be altered
  - locate the time for the first keyframe
    - click the dash in the appropriate attribute row and select "Add Keyframe" then change the value as needed
      - repeat for any other attributes requiring a keyframe at that time
  - move to the time for the next keyframe and repeat
  - Interpolation
    - select the desired attribute row
    - click in the right-most column and select "Interpolation"
    - change the setting as needed
    - interpolation options
      - constant - maintains current value until the next keyframe, where it suddenly changes
      - linear - creates a uniform distribution of values between keyframes (like FCP)
      - bezier - allows you to manipulate the interpolation with handles like a line in Illustrator
      - continuous - creates a bezier-like curve without the handles - gradual change near keyframes, maximum rate of change in the middle
      - ease in - value change slows coming into a keyframe, greatest change rate right after exiting a keyframe
      - ease out - opposite of ease in, change slows exiting a keyframe and increases as it approaches another keyframe
      - exponential - creates an exponential curve, where the value changes slowly at first, then increases the rate of change as it approaches the next keyframe
      - logarithmic - creates a logarithmic curve, where the value changes rapidly at first, slowing

as it approaches the next keyframe

- Finishing a project in Motion
  - Exporting
    - *File > Export*
      - or Command-E
    - Enter a name for the exported file
    - Specify a save location
    - Select the export type
      - Quicktime movie - usually what you need
      - Image Sequence - each frame as a still image, numbered in order
      - Current Frame - a single still frame, based on playhead location
    - Choose an appropriate preset
      - Quicktime Movie
        - DV NTSC Movie - appropriate for NTSC projects, most common preset
        - others based on format of your project (various HDs, etc)
      - Current Frame and Image Sequence
        - JPEG, TIFF, etc
        - whatever file format is suitable for the end use of the stills
        - TIFF is recommended for screenshots
    - Choose the media to include
      - Video and Audio
      - Video only
      - Audio only
    - Select "Use play range" to export the play range designated in the project
    - Click "Export"
  - Exporting a Selection
    - Select at least one file in the project pane or timeline
    - *File > Export Selection*
    - Follow steps in Export section
  - Exporting through Compressor
    - Allows use of Compressor's presets, useful if going straight to DVD
    - *File > Export Using Compressor*
    - Choose an export preset
    - Choose what media to include
      - Video and Audio
      - Video only
      - Audio only
    - Click "Export"
    - When Compressor opens, add any additional export targets desired
    - Specify the destination folder by selecting *Target > Destination > Other* and selecting a folder
    - Click Submit, then Submit again in the dialog box that appears