Houdini: First Steps

Module O4 - Key Frame Animation
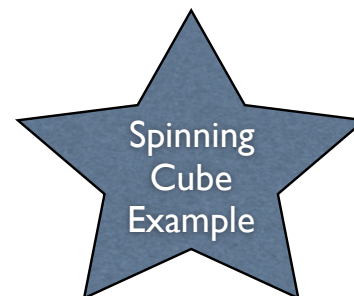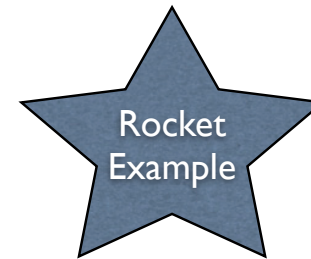
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Software

Title Text

Houdini
3D ANIMATION TOOLS

- Key Frame
- Time Line
- Auto Keyframe
- Channel Editor

- Channel Groups
- Flip Books
- Motion FX
- Takes

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Keyframe

- **How do you home on a single object in a viewport?**

  - **Space +g**

- **What is the hot-key used to play and stop the time-line?**

  - **Up Arrow**

- **What is the hot-key used to reset the timeline?**

  - **CTRL + Left Arrow**

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- To set a keyframe - ALT Left Click in a channel
  - Notice the channel box turns green
- Open the scope - Shift + Left Click
- Changing ease-in/ease-out
  - using handles
  - using icons

Rocket Example

Spinning Cube Example

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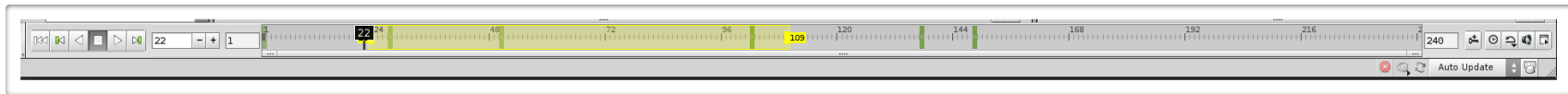Side Effects
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Adding Key Frames

- Alt + Left Click in a channel box

- Alt + Left Click in a channel box inside the scope

- Alt + Left Click on a channel's graph in the scope

  - Sets a key-frame for all visible channels

- Press the K key

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- CTL + Shift + Left click in a channel box

- CTL + Shift + Left click in a channel box inside the scope

- Highlight a keyframe and press DEL

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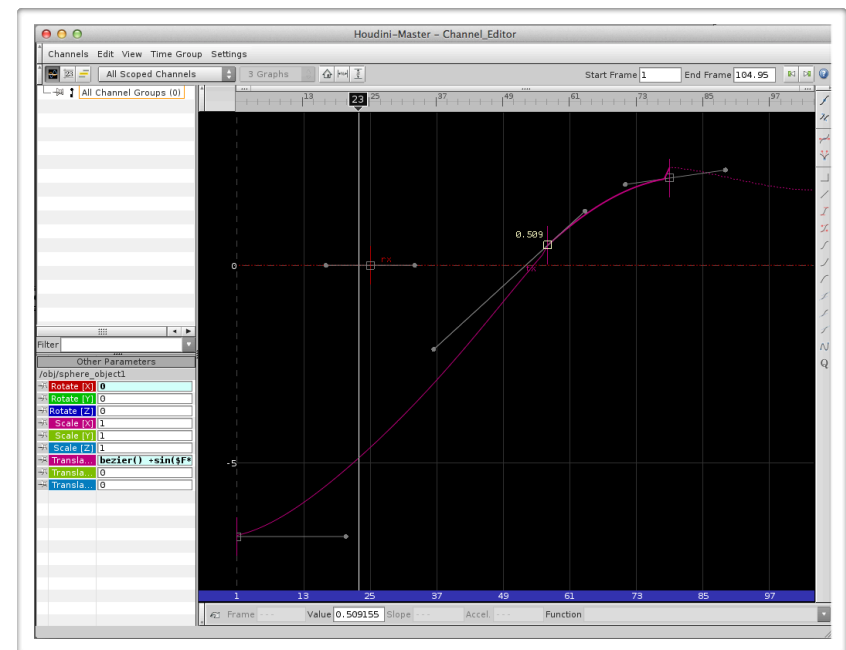
Time Line/ Mini Dope Sheet

- Timeline is a powerful tool for adjusting and creating Keyframes

- HasShift dope sheet like capabilities

- Shift + Left Drag - Create selection box around key frames you want to modify

- Shift + Left Drag on Solid squares at end of selection to resize selection

- Middle Drag - Move selected keys

- Middle Drag solid squares - Scale selected keys

- Right Click - Clear timeline selection

Scope Navigation

- **Vertical bar - adjust time of keyframe**

- **Drag keyframe box - adjust value of keyframe**

- **Drag bezier handles - adjust slope of curve**
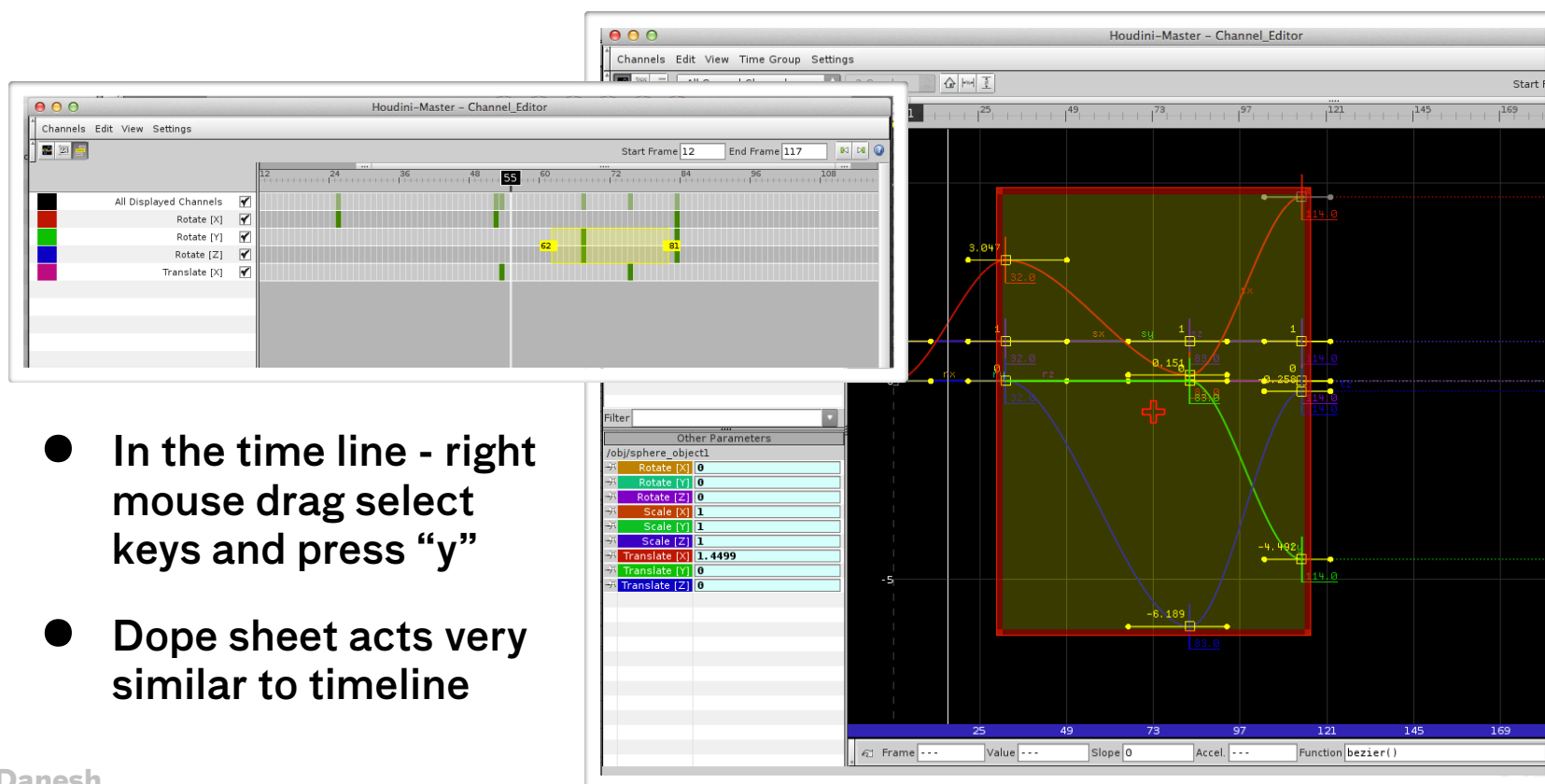
Channel Groups - Hot Keys

- Slope Adjustment

  - Slope to O = O (above the p key)

  - Auto smooth slope = 9(above the I and O keys)

- Jump to key frame

  - Jump to next keyframe = CTL + right arrow

  - Jump to next keyframe = CTL + right arrow

  - Jump to previous keyframe = CTL + left arrow

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- Selection

  - Zoom to selected frames = Box select keys +f

  - Show All = j

  - Isolate (show only selected) = i

  - Reveal previous view = Shift + i

Dope Sheet + Channel Editing

- **In the time line - right mouse drag select keys and press "y"**

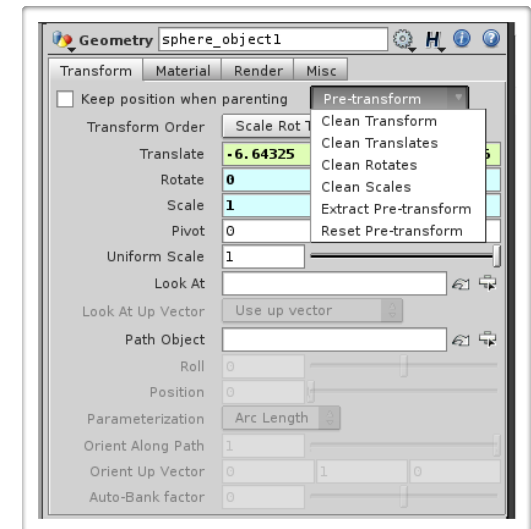- **Dope sheet acts very similar to timeline**

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Keyframes with Expressions

- Segments

  - In Houdini the path in between key frames is called a

  - The normal expression used between segments is Bezier, Cubic, or any of the keyframe functions

  - It is possible to use any other Houdini expression or nested set of expressions to represent a segment's value.

  - Keyframes also have their own local variables

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Animation Systems

- **Null - Creates simple geometry for use as control shapes.**

- **Blend -Switches or blends between the transformations of several input objects**

- **Path - A reference to the curve node or object you want this object to follow**

- **Fetch -The Fetch Object gets its transform by copying the transform of another object**

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What are Pre-Transforms?

- The pre-transform is like an invisible parent Null inside each object . The position, scale, and rotation values in the object's parameters are relative to the (normally hidden) values in the pre-transform.

- The pre-transform is useful, especially in character rigging , for setting a certain position, rotation, and/or scale as the "rest" or "zero" state for that object. After that, values you enter are relative to the pre-transform values.
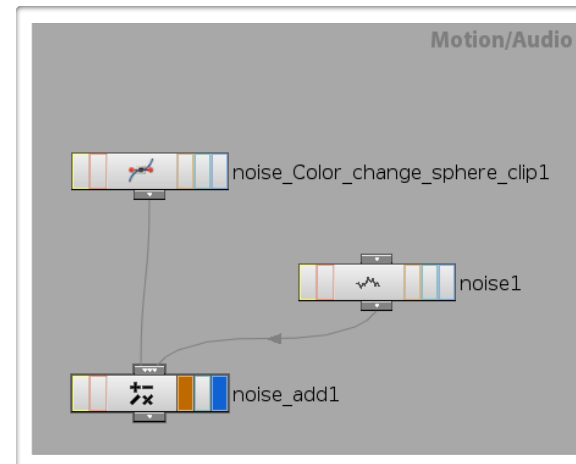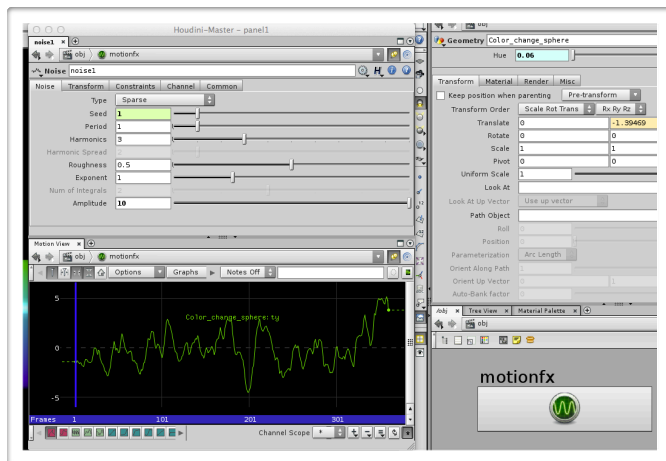
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- A flipbook lets you quickly review the motion and timing in an animation. It captures an image of a viewport for each frame and then plays the images as an animation. This is must faster than actually <u>rendering</u> the animation. You can also attach a sound file to test out how your shot is working with audio.
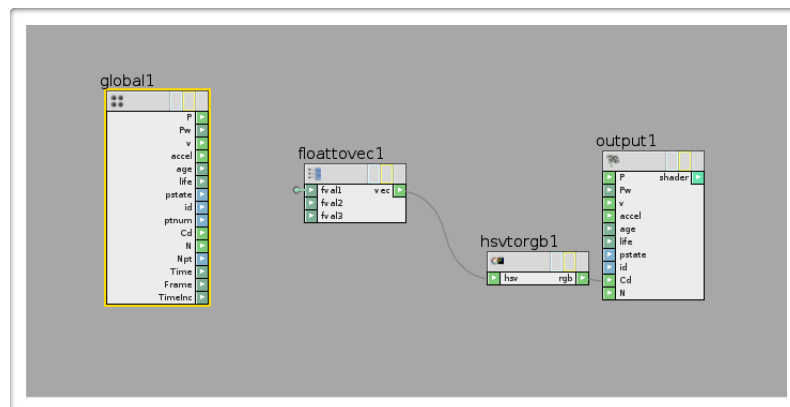
To...	Do this
"Render" a flipbook	Click the ✎ Flipbook icon at the bottom of the toolbox (on the left side of the viewer).
Change the flipbook settings	Right-click the ✎ Flipbook icon at the bottom of the toolbox (on the left side of the viewer) and choose **Flipbook with new settings.**

- Motion FX let you easily add secondary motion to keyframed parameters (usually translate, rotate, or scale parameters), such as jitter or overshoot.

- Motion FX use CHOPs

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VOPs are nodes that represent functions in the <u>VEX language</u>. VOP networks can perform various functions, such as computing surface shading, displacement, or defining new compositing nodes.