

Assignment 2: Swinging Rope

This assignment is intended to give you experience with:

- using the graph editor
- animating hierarchies
- the animation principle of overlapping action/follow-through
- rendering a movie

Your goal is to animate a natural-looking piece of rope coming to rest. One end of the rope is tacked to the wall, the other end left free to swing. The scene file you are starting with has the upper-level (also known as root-level) node of the rope hierarchy already animating. You need to animate the three child nodes to make the rope look more natural, then render out a movie.

Step 0: get everything you need to do the assignment, run Maya, load the scene file

- The project folder on urza is called "assignment_02"
- Follow the instructions from the last assignment to copy this folder to your local machine's desktop, rename it, run Maya, set the project appropriately, and load the scene.

Step 1: watch the initial animation as a PLAYBLAST

- Make sure you're looking through the orthographic **front** camera.
- Under **Window** in the main Maya menu bar is **Playblast**. Choose this to do a quick and dirty render of each frame so that you can watch the starting animation in real-time. In this case, real-time is 24 frames per second.
- If QuickTime Player doesn't pop up automatically when the playblast is completed, find it in the dock and click on it to bring it to the foreground. Then hit play to watch the animation.
- Note how the "rope" looks pretty rigid. You need to make it look less rigid!
- Close the QuickTime Player window when you're done watching.

Step 2: animate

- If it's not already visible (it should be by default), get the Outliner window up. This will allow you to choose between the different rope segments.
- Don't change the animation for the parent - you should only animate the nodes named rope2, rope3, and rope4.
- The only channel you should change for any nodes is the (dark blue) Rotate Z channel.
- Choose the rotation tool (e), and click on the dark blue circle to change the Rotate Z value. If you don't see the dark blue circle, it may be because it's already been marked the "active" manipulator, in which case it will be yellow.
- You may want to start by setting rotation keyframes for the children nodes at the SAME FRAMES where the keyframes are for the parent node. This will make them move, but it won't start looking realistic unless you *overlap* the motion. You can find the location of the existing keyframes by selecting the rope1 node and looking for the red tick mark in the time slider. You can also find them in the graph editor.
- To easily create overlapping motion, you can shift the temporal position of a keyframe left and right on the graph editor by selecting it (left mouse), then click-dragging with the middle mouse left and right (if you move up and down you will change the rotation value).
- You can also right-click in the time slider and select **Keys->Add Inbetween** or **Keys->Remove Inbetween** to change the number of inbetweens between two keys.

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- When you rotate a node where you want it, be sure to make a keyframe! To do this, you can hit **Shift-e** (to explicitly set a rotation key on the currently selected object).
- If you want to see how your motion looks, go ahead and render another preview. You can try just hitting the play button to the right of the time slider but DON'T TRUST the results you get! It should try to play back the animation in real-time but to do this it has to skip frames, so you won't be seeing your animation in its entirety.
- Save your work often!! I suggest using incremental file names so you can always go back to an earlier step if you want to (chrisPerry.2.mb, chrisPerry.3.mb, and so on). Maya can also do this for you if you look under the options for **File->Save Scene []** (click and drag to the little box on the right of Save and turn on incremental saves).

Step 3: render your movie

- When you like the motion you have, it's time to render a movie.
- Find the **Render Globals** icon in the upper right interface (two to the right of the rendering slate we used last time) and click it.
- In the Render Globals window that appears, type in a unique name for the **File Name Prefix**. Don't include an extension (like .mov): the software will add it for you.
- Click the **Compression...** box. This pops up a QuickTime Compression Settings box. Make sure the codec is **Animation**, set **Depth** to **Millions of Colors** and **Quality** to **Best**. We'll discuss what these settings mean in the future. Hit **OK**.
- Confirm that the **Start Frame** is 1, the **End Frame** is 56, and the **By Frame** is 1. Also make sure the **Image Format** is **QuickTime Movie [qt]**. Set **Camera** to **front** (assuming you animated to the front camera as expected), and make sure the **RGB Channel (Color)** box is checked and the **Alpha Channel (Mask)** box is unchecked.
- Back at the top of the Render Globals window find the **Maya Software** tab, select it, then set the **Quality** to **Preview Quality** for starters. Close the Render Globals window.
- With the pointer anywhere in the Maya window, hit and hold down the **spacebar**. This pops up the Maya **hotbox**. Find the menu **Render** on the bottom right, click and hold down with the left mouse and make your way to **Render->Batch Render**. This starts rendering your frames, one by one!
- Watch the **Command Feedback** window in the bottom right of the Maya interface. It should show you the progress of your render. When it's done, you should see the text "Completed. See mayaRenderLog.txt for information." It should take less than a minute.
- Click on the Finder in the dock and navigate your way to your assignment 2 project folder. Find the **images** subfolder, and therein you should find your movie file (with a .qt extension). Double-click on it to watch it in QuickTime Player (or drag it onto the Q icon in the dock).
- If everything looks good, now you should make a higher-quality render to hand in. NOTE: you won't be able to render to the same filename if the old movie file is still open in QuickTime Player.
- In the **Render Globals** window find the **Maya Software** tab, select it, then set the **Quality** to **Production Quality**. If you want, you can choose a different output filename in the Render Globals window so as not to overwrite your preview movie. Then you can watch them side-by-side.
- Close the Render Globals window and start another batch render.

Step 4: hand in the movie and the scene file

- Make sure your scene file and final high-quality rendered movie are named uniquely ("chrisPerry_a2.mb", "chrisPerryRope.qt").
- Drop both the movie and the scene file into the hand-in folder on urza. You may want to create yourself a folder in the Group Shared area on urza and drag your project folder there for future reference. When you're done, clean up the desktop.

DUE Monday October 4th at the beginning of class

THIS IS A HARD ASSIGNMENT. Don't wait until the last minute to start it. Allow yourself some time to get used to the Maya interface before trying to put in all of the overlapping motion.

Helpful resources:

The online Maya PDF manual.

The section of the Lasseter article on follow-through and overlapping action (available in the hand-outs folder on urza).

With Maya running, go to **Help->Tutorials** or search around online for one of many Maya tutorials.

Class email list: cs174f03@lists.hampshire.edu

TA Josh (jmarvel@hampshire.edu)

Me (perry@hampshire.edu)