

Session 3: Appendix - Animation tool

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Abstract

The goals of this session are to introduce the BioImage Suite Animation Tool. These lecture notes and other additional information will also be available on the class webpage: <http://research.yale.edu/bioimagesuite/course/> – see the webpage for additional links etc.

1 Introduction

BioImage Suite allows the user to capture movies of their interaction with the tool. Such animations can be used for conference videos, saving results that might be harder to obtain on a regular basis and or for instructional purposes to help others learn how to perform a task using BioImage Suite.

Within the suite, the *Animation tool* is specifically designed for the purpose of creating and saving movies. The animation tool is accessed using the “Animation Tool” option in the “Display Menu”.

2 A Description Of the Animation Tool

2.1 The Main tab

The animation tool is divided into two tabs. The first part, **Main**, is a simple automated JPEG grabber. Just as you can save a single snapshot of everything in the black box viewing area using the Save button on the Viewer Controls, you can use the Animation Tool’s main function to save multiple JPEGs over a long amount of time with a given interval. To do this, select your delay time (or interval between snapshots) using the pulldown menu. Select your path using the **Browse** button. You can edit the base name “grabbedname.jpg” to alter the resultant filenames (results will be e.g. grabbedframe000.jpg).

After pressing *Start Grabbing*, you can manipulate the image as you desire. Then press *Stop Grabbing* to terminate the process.

(Note that in order to get the 3D animations you may be interested in seeing, you must set the viewer to *3D only mode*, which can be done in the viewer or using the convenient button at the bottom of the Animation Tool).

2.2 The Script tab

Scripting is a more advanced method allowing for interpolation of animation between frames. This will save you the difficulty and time of having to drag the mouse at certain speeds and directions to obtain an adequate animation. Figure 2 provides a screenshot with labels that are explained below.

- 1: The script. This is comprised of several reference frames provided by the user. The tool will create a sequential animation from the first frame through each subsequent frame based on the parameters provided by the user. You can select frames using the up/down buttons or by clicking on them, and delete them individually or completely as necessary.
- 2: A readout of coordinates and information about the current frame selected, including the camera position and view.
- 3: A relative duration for the animation from the current to the subsequent frame - for example, changing this value from 1.0 to 2.0 will make the animation take 2x the time, or operate at 1/2 speed.
- 4: Interface between the viewer and the script. *Add* takes the current view in the viewer and adds it at a frame (in this case the next frame would be CM.35). *Update* refreshes the currently selected frame in your script to represent whatever is currently in the viewer. *Send to viewer* refreshes the viewer to show the currently selected frame. *Auto update*, when selected, sends the frame to the viewer as soon as it is clicked (eliminating the need to click *Send to viewer*).
- 5: Duration and subdivision factors for the entire animation (as opposed to the control in 3, which is for one step only). The subdivision controls the number of steps the animation takes to go from one frame to the next. Duration controls the length of the entire animation. Entering a low number of subdivisions and a length duration creates a *slide show* effect. Increasing the number of subdivisions creates a smoother, more detailed animation.
- 6: Animate shows what your current animation will look like based on the script and the parameters you have entered.
- 7: Calls viewer controls, or switches the viewer to 3D mode (most of the time the animation tool will be used to create 3D animations.). You may also want to use the *volume* drop-down menu in the viewer's right pane to flesh out the image in 3D.

2.3 The Menu

The setup menu allows you to load and save scripts for your convenience and exit the animation tool console when necessary.

The spin menu is located within the Animation Tool and can be accessed as a drop-down next to the Setup Menu.

- Spin 10 - automatically spins the model, horizontally, inserting 35 steps. Spin 20 inserts 18 steps and Spin 30 inserts 12 steps
- Positive Rotation - Adjusts between clockwise and counterclockwise spinning. The default, when positive rotation is checked, is counterclockwise.
- Azimuth - adjusts between rotation about the z-axis and the xy-plane. The default is azimuthal spinning on the z-axis.

3 Making a simple animation

Start by loading the Orthogonal Viewer from the main menu. Once the viewer has loaded, choose an image from File-Sample Images. In this case, we'll use the MNI T1 1mm_stripped model.

Locate the Animation Tool from the Display dropdown menu. The animation tool defaults to the **Main** tab. Ensure that the save path is directed to an appropriate folder so that you can find the output files later. Experiment with



Figure 1: This figure shows a screenshot of the animation tool with Main tab. The *Base name* text box allows the user to change the default base name of the first file that will be saved. The *Delay time* allows the user to set the delay time after which the next image is captured from the workspace. The *Start Grabbing* and *Stop Grabbing* buttons are used for starting and stopping the animation capture process. If the delay time is set to manual, then successive frames will be acquired using the **Grab-Next** button which appears once the “Start Grabbing” button is pressed. Alternatively the keyboard shortcut (Control-a) can be used to manually acquire successive screenshots.

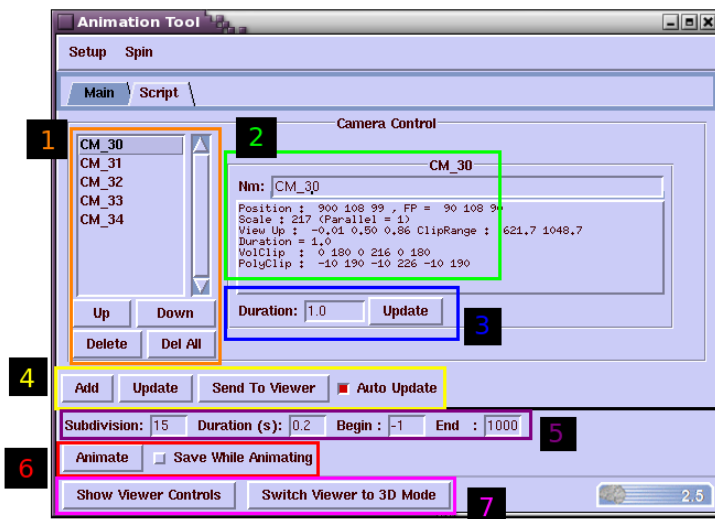


Figure 2: A screenshot of the Script tab with labels. The significance of each label is providing in the accompanying text.

this tab by setting the Delay time to 500 ms, and grabbing a few pictures with the **Start Grabbing** button while you rotate the image in the viewer. Click **Stop Grabbing** and examine the images in your file path.

Move to the script tool using the tabs at the top of the Animation Tool window. Try making a simple script by clicking Add, then rotating the image slightly and clicking Add again. You may want to delete the original frame which will be called **None** as well. Once you have two or three points, click **Animate** and view your animation in the window. Add a few more frames. Try doubling the default duration value for one of the frames to 2.0 and run the animation again.

Examine the Spin tab. You can either delete all of your first frames or add on to the animation. Use Spin 30 as it goes the quickest, and re-run your animation. Try changing the rotation direction and axis with the Azimuth and **Positive Rotation** options in the menu.

Once you have familiarized yourself with the options, you can choose to save your animation by clicking the **Save while Animating** tab next to the Animate button and run the animation again.