

Hands-Free Digital Animation Coloring with Filmstrips

By Joe Daniels and Jedidiah Mitchell

This coloring process requires 3 things: Adobe Photoshop, Adobe After Effects, and a Wacom tablet.

1.) Animate!

To begin you'll need a piece of animation that's shot and timed. This can be in the form of either an image sequence or a movie file. Whatever it is, it should be on 1s -- that is to say, each frame should be a unique drawing. If you're animating on 2s Time Stretch your sequence so that it's on 1s -- for the sake of coloring you don't want to be coloring the same frame twice or three times, so you'll work on 1s even if you'll later move to a slower frame rate or mixed timing.

2.) Import to After Effects

Once you have your animation in movie or image sequence format, import it into a fresh After Effects project. Make sure your import & composition settings are set to the desired frame rate (usually 24), then import.

3.) Add to Render Queue... Export as Filmstrip

Now add your sequence to the Render Queue in AE. Change the Output Mode to Filmstrip, pick a file destination, and hit Render. AE will churn out a filmstrip file -- a single image which is broken up into visible frames, just like a length of 16mm film would be, with markers that AE and a few other programs can read which allow the image to be reassembled into a video file later on.

Filmstrips will align frames vertically, one on top of another, when they are created. If you try to use more frames than the maximum vertical height of the filmstrip format (30,000 pixels), it will stop after 62 frames ($30,000 / 480 = 62.5$ -- assuming you're using NTSC sized frames) and move to a second column. This is fine -- just somewhat inconvenient for the colorist, as you will see.

4.) Configure your Wacom pen (optional, but useful)

Open up your Wacom tablet preferences (this may work with other brands besides Wacom, but I haven't seen any yet), create a new application category for Photoshop, and a new tool (the pen) to create settings for. Depending on the version of tablet driver you have installed this process will be a little different, but every version lets you customize what those two buttons on the side of your pen do. Set the top button to trigger a "Keystroke..." The keystroke you want is Shift+PageUp. Do the same for the bottom button, but with Shift+PageDown. PageUp and PageDown will scroll through any Photoshop document, but Shift+PageUp and Shift+PageDown will scroll through a Filmstrip at exactly the frame height of your original video, thus giving the appearance of actually watching video in your Photoshop window as you color it. By mapping these commands to your tablet you'll be able to "roll" your colored frames just like you would a stack of paper on pegs. This is *very* useful.

5.) Open in Photoshop (buy more RAM...)

You may actually want to break up your sequences into manageable chunks that aren't too large for your computer to handle. Some machines have better luck with these than others, but basically the more RAM in your computer the easier your life will be when coloring.

Once you have your file open in Photoshop, make a new layer (don't paint on the Background layer!), pick a brush, a color for your primary color layer, etc. and just paint in the lines! As you can

see, you have a very long, narrow document there with frame after frame of your animation laid out in vertical descending order. So, all on one layer, paint each frame with your base color. Use your nifty pen buttons to watch your animation play backwards and forwards as you work on it to see how your colors read -- you shouldn't even need a keyboard to color now.

6.) Make detail layers, highlights, shadows, etc.

Make as many layers as you need, one for each part of the animation -- say one yellow layer for a dog's primary color, one brown layer for eyes/ears/spots/etc., and one blue layer for a collar. If you'd like to add a shadow or highlight layer, you can do that by painting it, or by using the layer effects in Photoshop. Open your primary color's Layer Effects and turn on Inner Shadow, set it to a lighter color, set the blend mode to Normal, and change the angle as desired. This will create a highlight on every frame of the animation, coming from the same imaginary light source in each frame.

If you want to use this technique but still would like a separate layer for the highlight, duplicate your base layer, make the highlight, and then change the Fill Opacity under the Blending Options tab to 0%. This will create a transparent layer with only a highlight in it. The same techniques work for shadows and other lighting or filter-based effects.

7.) Save each layer to a separate filmstrip file

Filmstrips are limited in some ways, one of the most annoying being that they can't store layers in them. So you'll have to save out individual .flm files for each layer you color. Turn off every layer except your base color so that you have your color floating over that transparent checkered pattern, then Save As... and name it something like seq01_base.flm. Repeat for all your other layers, naming them things like seq01_brownSpot.flm or seq01_highlight.flm. Because filmstrips *do* save alpha channels you'll be getting color files with just the color in them, nothing else.

You should also save your working file as a regular old .psd -- even though it won't register as a filmstrip anymore, it's worth it to save all those layers you've been working with. If you ever needed to get the layers back into filmstrip format later on, you could open up the original filmstrip AE gave you and your layered master file, select-all/copy/paste a layer from the master to the original, then hide the background in the original and save it again as a new filmstrip.

8.) Back to After Effects! Sync your color with your animation

Now that you're back in AE with your newly colored filmstrips, create a composition with your pencil test in it and add all the layers of color you've made on top of that. If their playback speed was changed during Step 1, Time Stretch the colored sequences to fit whatever their original frame rate was so that they match the pencil test again. Set each layer's Blending Mode to Multiply if you want to see the pencil test lines through your color. When it all looks good, add this new Comp to the Render Queue, set those parameters as you wish, and render out a movie of your newly colored sequence!

9.) More tricks (external shadows made easy)

Another useful trick is to create floor shadows for your character with these color layers. In AE, duplicate your base color layer and change the brightness/contrast so that it's a dark color (or black). Now give the new layer a Transform effect and basically perspect/skew/rotate/whatever else you need to do to get it into position so that it looks like a shadow. Add a Gaussian Blur effect to soften it a little, if you want. Move the layer to the bottom of the stack so it doesn't self-shadow any other color layers, turn down its opacity a little, and there you go. A new shadow for your character.

There are endless tricks you can use these techniques to produce. Experiment and I'm sure you'll find some you like. Of course, you'll usually get the best results from just drawing things the way you want them to look, but in a pinch this system can save you a lot of time.