

Special Visual Effects

assignment 4

Roll your own color difference matte

For this assignment you will create your own color difference matte for a short (5-7 second) test shot of an object moving in front of a colored background. Like assignment 2, you simply have to composite your object over a new backing color to demonstrate the quality of your extracted matte.

Your FG object should be something with "difficult" edges such as a furry stuffed animal or a person's head (assuming they have hair). Your FG object should move relative to the camera so that you have to grapple with motion blur and interlace lines, too. A rough outline of the process:

- Proper lighting and capture will make for the best mattes.
- When you capture your footage on the computer, be sure to use the highest quality settings (DV NTSC best quality, 29.97 fps).
- Create an FG comp (call it *FG*) with your FG movie file. A good quick way of addressing the 4:1:1 problem is to stack one copy of the FG movie on top of another. Add a "Gaussian blur" effect to the top layer with a size of 6 pixels, and set the blending mode of the top layer to "color."
- Create separate R, G, and B only comps (call them *FG r*, *FG g*, *FG b*) from the FG comp for use in making the color difference matte. I recommend using the "shift channels" effect for this.
- Assuming a green backing screen was used (swap "G" for "B" from now on if you used blue), create a comp that is the maximum of the R and B channels (call it *max R B*). Use the "lighten" blending mode for the top layer in the comp to achieve "maximum" in After Effects.
- Create a comp for the raw matte that is G minus *max R B* (call it *Raw G-maxRB*). For all of the subtraction operations that follow, use "compound arithmetic" on the top layer, set the "second source" to the bottom layer, and use "subtract."
- Create a comp from the raw matte that is the scaled matte (call it *Scaled Matte*). Use the "levels" effect like in the Williams Process.
- Now you have the matte. But if you composite the original FG layer with this matte you will surely have spill visible on the edges. So you have to despill/suppress! The basic approach to suppression is to limit the value of the G channel so it doesn't go above either the R or the B channel. These notes will describe the simple G-R approach, but feel free to implement another if it works better for your scene. See Wright for details.
- Create another comp that is G minus R (call it *G-R spillmap*).
- You need to subtract that comp from the original G to get the suppressed G. Create another comp (call it *FG g suppressed*) where you subtract *G-R spillmap* from *FG g*.
- Almost there. Now you need another comp that puts the R, G, and B channels of FG back together to create the full suppressed FG. Drag *FG* and *FG g suppressed* into a comp. Use "set channels" on FG to grab the G channel from the suppressed layer. Voila! This is your new *FG suppressed* comp that you will composite over the test background.
- One final comp. In it, create a test BG solid that's a very different color from your colored screen. Add *Scaled Matte* and *FG suppressed*. Use the matte as a track matte on the FG layer and composite over the solid background. If you need to tweak anything at this stage to make it look better, go ahead (blur, minimax, etc.).
- The frame rate of your final comp should be 59.94 so that the matting happens on every field. And of course, when you render you should do best quality with the two changes we always make: lower field first and use a specific frame rate of 29.97. Export to DVNTSC, best quality.

The assignment is **DUE Thursday March 13 at the beginning of class**. No tapes for this assignment, however, you must hand in a folder containing your **original source footage, your After Effects project file, and your final rendered movie**. PLEASE limit your clips to 7 seconds so that we don't fill up the course storage disk.

REMEMBER: On Tuesday March 11, class will be held in the studio in the basement of the library.