

## **CSC/FAR 020, Computer Graphics, Week 2, Fall 2010**

Log for D. Parson, September 7 and 8, 2010, color curve manipulation. Image color20090905/fieldRawJPEG.jpg is the basis for both of these transformations.

1a. Open fieldRawJPEG.jpg in PhotoShop.

1b. Image -> Adjust -> Curves, the first goal is to deepen the washed-out yellowish region in the center. It needs more yellow. Consulting RGB.psd, we can see that red + green = yellow, and also that blue is the opposite of yellow. Within Curves select the Blue curve and sample the yellowish center of the field, along with other parts of the image. Note that the yellow field falls within the center of the blue curve. Experiment with pulling the center of this blue curve up and down. It has the desired effect on the field, but it also modifies the sky undesirably.

### **SUBTRACTING BLUE WITHOUT AFFECTING THE BORDERING LOW-BLUE AREA.**

1c. Get out of Curves, draw a polygonal selection area around the field using the polygonal lasso tool, get back into Curves, and try the blue curve again. Adding blue would adversely affect any dark areas just outside the selected field, but subtracting blue is not likely to affect the surrounding areas because it is already low on blue. Subtract some blue to taste to make the field yellower. Accept the change once it is what you want and it does not leave artifacts around the field.

### **ADDING RED WITHOUT AFFECTING THE INTERLACED MEDIUM-RED AREA.**

1d. Use the rectangular marquee tool to select the dark tree leaves in the upper right of the frame. This will get you some sky. Try to minimize the amount of sky you get, but do not fuss over it too much. Go back into curves and sample this polygon for red. The somewhat washed-out sky has medium to high red components, but

the dark leaves have none. Increase red for the dark leaves only. Push the red somewhat to the right of the dark area-for-red in the leaves. Be careful not to saturate. Accept when ready.

1e. Marquee and shift-marquee select the sky, then alt-lasso to remove major areas of tree in the upper left. There is a lot of blue, red and green in the washed-out sky, so push the blue by lowering green for the sky and accepting a tentative copy, then doing the same for red. Use the History palette to select a final image. Save this as fieldcolorboost.psd in the working folder, and then compare it to the original JPEG file.

2. Edit the original fieldRawJPEG.jpg in PhotoShop, and this time use Curves to create two sine wave peaks, one peaking (and thereby inverting) the dark areas in the RGB curve, and then having a second peak that drops to zero before the original peaks for the washed-out sections. After coming up with a satisfactory image that you accept, do a second trip through selection and then Curves to get rid of the chemically green glow that appears in the upper left of the photo. Save this as fieldcolortwist.psd in the working folder, and then compare it to the original JPEG file.

**ASSIGNMENT 2, DUE BY 11 PM September 20 in my Inbox.**

Please follow all written instructions below, and then reread them before you turn in this assignment.

Dr. Dale Parson, <http://faculty.kutztown.edu/parson>

**FOR CLASS ON MONDAY SEPTEMBER 13 BRING YOUR CAMERA AND CABLE OR CARD READER FOR PRACTICE IN TAKING AND DOWNLOADING PICTURES USING THE ADOBE BRIDGE. CAPTURE SOME IMAGE FILES TAKEN WITH YOUR CAMERA AS DESCRIBED IN STEPS 1 THROUGH 5 BELOW FOR PRACTICE, AND BRING THOSE AS WELL.**

Make a folder called FirstLastResolution for this project, where First and Last are your First and last name. Turn in the ZIP archive of this file by the due date to your course's Inbox under folder Parsons.

1. Read the documentation for your digital camera and

find the various pixel dimensions (resolution) that the camera can capture. **Capture one JPEG file at each resolution of a single scene.** Document the available resolutions in your README log file.

2. **Save two of these files as JPEG files** in your folder, where the file name is some descriptive name followed by WxH.jpg, where W is the JPEG width in pixels, and H is the JPEG height. For example, campus3264x2448.jpg. The two files must be of **differing pixel dimensions** (resolution).

3. Find some feature that is common in both JPEG files that shows up more clearly in the higher resolution shot according to the pixel dimensions or obvious visual clarity of that feature in the higher resolution photo compared to the other. **Outline in your README log file** (create this in the folder) how to find the feature and how you determined that it is sharper in the higher resolution photo.

4. Determine whether your camera has optical zoom and whether it has digital zoom. If it has optical zoom, capture one JPEG shot of some scene (possibly a different scene) zoomed out (lowest possibly focal length), and another at maximum optical zoom in (largest optical focal length). If the camera has digital zoom, take a third shot with that as well. **Save these two or three JPEG files** in your folder with names indicating the scene and focal length, for example creek50mm.jpg.

5. Capture a scene with at least moderately high contrast in light levels and colors. You may have to wait for a sunny day or go indoors for this step. In addition to your original photo, you will save **two Photoshop files, one processed to highlight natural colors** similar to my fieldcolorboost.psd (You would lose some points for artificial artifacts in this one), and **one processed to create an artificial environment similar to my fieldcolortwist.psd.** This latter one earns the 10% where you should experiment with Color Curves capabilities. **Document your steps** in a log file as I have done above. See additional

instructions below.

ADDITIONAL INSTRUCTIONS ON THE PREVIOUS STEP:

As we are going over in class (see above), the image or images to which you apply Image -> Adjust -> Curves must have two areas that you transform for step 5. **#1 The first area must be an area high in some color that is surrounded by an area low in that color. You must subtract this color in the high-color area without noticeably affecting the surrounding, low color area. This corresponds to the section**

"SUBTRACTING BLUE WITHOUT AFFECTING THE BORDERING LOW-BLUE AREA" in my log notes that we are going over in class. (You can also find these as the Class 3 Outline at

<http://faculty.kutztown.edu/parson/fall2010>). **#2 The second area must be an area low in some color that is surrounded by an area high in that color.** You must add this color in the low-color area without noticeably affecting the surrounding, high color area. This corresponds to the section "ADDING RED WITHOUT AFFECTING THE INTERLACED MEDIUM RED AREA." You must do both forms of color processing using Image -> Adjust -> Curves, and you must log instructions for the steps you take in your README file. Both these editing steps and writing this log are important to this assignment.

6. Using the Adobe Bridge, **find the metadata** for the above JPEG files, including aperture, shutter speed, ISO number ("film speed"), and focal length. In your **README log file document all of these parameters** and any additional metadata that you find for each of the JPEG files that you captured above.