For the final project, I would like to create a program that manipulates an image using a pencil sketch effect similar to the examples provided at the end of this paper. In Photoshop, there is no filter that directly produces such an effect, but there is a procedure that one can follow to achieve so. My program will automatically go through this procedure and apply the effect on the image for the user, thus saving him or her time.

1. Desaturate the image. This will involve converting RGB to HSV first, like we had done for class, and then toning down the saturation value.
2. Create a new copy of the desaturated image and then invert it.
3. Apply a Gaussian blur to that copy. This will involve convolution, which we had discussed and practiced in class.
4. Blend the two images together in color dodge mode.

For the Gaussian blur, I will let the user input a value for the factor of the blur in the command line; the larger the value, the blurrier the image will become. I will then display the final result with OpenGL and write it to a new image file if the user specifies an output filename in the command line.

The rubric that I’ve devised for this project is similar to the rubrics used for our labs.

Reading and Writing
   + 10 Code correctly reads in and writes out sketched image if second filename is specified
   + 10 Code correctly displays the sketched image

Sketch Effect
   + 10 Code correctly de-saturates image
   + 10 Code correctly inverts image
   + 20 Code correctly computes a 3x3 Gaussian kernel matrix using factor input
   + 20 Code correctly applies a Gaussian blur to the image
   + 20 Code correctly uses color dodge mode to blend the two images together

Some of the criteria in this rubric are related to each other. For instance, if I do not manage to apply a Gaussian blur on the image then I will not have a second image to blend the inverted image with. My program will have commenting and will come with a README which will explain what it does, how it works, and how to use it. If neither of those were met, then I will have no problem with having points deducted from the final grade.
Here are examples of the effect that I want to achieve: