ELEN 640, COEN 340: Image Processing I
Fall 2020
Homework 3

Due Date/Time: Wed Oct 21, 2020. 7:00 PM Pacific

Notes:

1. Same comments apply to this homework that were enumerated in Homework 1.
2. You have to write your own convolution algorithm. **Do not use any built-in convolution or kernel filtering functionality. You can zero-pad the input images around the edges for this homework.**
3. Use "coins.tif", "Apple.tif" and "Gearwheel.tif" for this exercise. Convert them to 8-bit grayscale image.

Problems:

1. Create Gaussian kernels of sizes 3x3, 5x5, 7x7, 9x9 and 11x11 with sigma = 1.0, 2.0, and 5.0. Display the kernels.
2. Filter the images with the kernels with your convolution function and display the output images.
3. Add noise to the images with sigma = 2.0, 5.0 and 20.0. Filter the images with the kernels for each of the noise levels and the kernel sizes for all the 3 images. You should have a total of 45 output images. Display the images.