ECE 5554
Theory and Design of Computer Vision Systems

Fall 2005, 3 credits, CRN: 95427

HW#3

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1. Write software code to create a four-level Gaussian/Laplacian pyramid of lena.pgm using blurring and subsampling. Using the fourth subsample, recreate the original image in reverse steps of upsampling and blurring. Print out all the subsamples for both operations.
2. (a) Use the software code you have already developed to perform automatic thresholding (use any method) of figure3_2a.pgm. Write software code to find all straight lines in the image figure3_2a.pgm. This software code should include the automatic thresholding code in it and therefore, should take the input image, perform thresholding, and then use the Hough transform to identify lines. Create an output image that prints out the input image with the identified straight lines drawn in white.
   (b) Write software code to find all circles (that can fit in the input image completely) in the image figure3_2b.pgm using Hough transform. Create an output image that prints out only the identified circles.