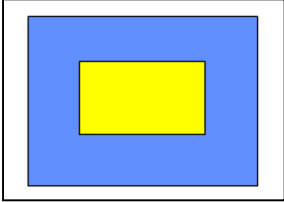


Homework 2: (50 points) In all cases, show all images with their corresponding intermediate results

1. Synthetic images are widely used in image analysis to assess performance of a method. Create a synthetic image as shown to the right where the background and foreground are 50 and 150, respectively. The large square should be 150-by-150 pixels, and the small square should be 75-by-75 pixels. Add Gaussian noise and increase the amount of noise to generate 4 additional corrupt images. Corrupted images should have variances of 10, 20, 40, 100; however, these values are appropriate within the range of pixel intensity in the original image (e.g., 256 shades of gray). You will need to normalize these variances if you are using matlab imnoise command.
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2. Apply LoG Filter with sigma of 0.5 and 2 and compute zero crossing. Estimate the LoG filter with a DoG filter.
 3. Use the stent image and apply the following operations
 - a. Enhance image
 - b. Add original image with a response of LoG filter and then enhance
 - c. Create a blurred version of the image with a 3-by-3 filter. Subtract the original from the blurred version. Add the difference to the original image. Report the results
 4. Implement a derivative of Gaussian, with sigma of 1, 3, and 5, and convolve with the Lenna image. Show the derivatives in X and Y directions, and compute magnitude.
 5. Develop an algorithm to segment Coins.png by edge detection. Your algorithm should only output true edges and label each coin uniquely.