



Image processing - Lab 2

Bởi:

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Problem 1. Noise Generators

In this problem, you will create some kind of noise and add them to the image. This will be used for upcoming problems also. For a sample image, you can get this image “Circuit board” from the attach material

1. Use function **randn** to write a Matlab function to add Gaussian noise to the image. You should be able to specify the mean and variance
2. Write a Matlab function to add salt-and pepper (impulse) noise to the image. You should be to specify the probabilities of each of the two noise components. These noise can be generated with the **imnoise** function

Problem 2. Noise reduction Using a Median Filter

Write a Matlab function to apply mean filter for de-noising the image made in part2 of problem 1 without using Matlab’s **medfilt2**

Problem 3. Enhancement Using the Laplacian

1. Make a 8x8 check board image by using Matlab function **checkerboard**
2. Make image of the check board damage by a linear motion of a camera by 7 pixels, 45^0 . You may want to use function **fspecialwith type motion**
3. Use Weiner filter to de-noise the damaged image. You may consider **deconvwnr** function.

Problem 4. Wavelet de-noising Ex8 544

Obtain the Pepper and the code framework from the attached material

1. Reuse the code made in problem 1 to add some Gaussian noise to the image
2. Take the wavelet transform of the image
3. Do the wavelet de-noising and recover the image.

Problem 5. Image Enhancement MP6 547

In this problem, you are provided with an image of the text and asked to enhance it so that the text in the image is readable. The more amount of text that you are able to decipher as well as your creativity in employing processing techniques the more successful you are.

You can choose any image enhancement method or de-noising method that you are familiar with.

Some of the suggestions are:

- Wavelet De-noising
- Median Filtering
- Median Filtering
- Histogram Equalization
- Edge Enhancement.

Please get the image “guess_what.bmp” from the attached material

All the file including images and Matlab files are [here](#).