EE 146 COMPUTER VISION

Department of Electrical & Computer Engineering
University of California at Riverside
Tues., Thurs. 3:30 - 4:50pm, Online Class, Winter Quarter 2022
Labs Wed 8:00 --10:50am, Online; Thurs. 11:00 -- 1:50pm, Online

EE 146 Lab 4, January 26 & 27, 2022

Goal: Understand the basic techniques for image filtering and edge detection.

Problem 1: Remove noise in images using various filters

1) Download the image from ilearn (corrupted by Gaussian noise), use mean filter, median filter and Gaussian filter to remove noise and evaluate which filter works the best and why?
2) Download the image from ilearn (corrupted by salt and pepper noise), use mean filter, median filter and Gaussian filter to remove noise and evaluate which filter works the best and why?
3) Submit the filtered images for each filter.

Hint: use matlab functions: imfilter2, medfilt2, fspecial.

Problem 2: Edge detection using different operators

1) Download images from ilearn
2) Use Prewitt, Sobel, Laplacian of Gaussian (LOG, see p. 610), and Canny operators to detect the edges. Try different thresholds to detect edges and evaluate the results.
3) Submit the edge detection results using different operators and thresholds.

Hint: use matlab function: edge.

Problem 3: Image sharpening by Laplacian

1) Get an image which is slightly blurred
2) Sharpen the image in 1) by subtracting a weighted (weight = C) Laplacian from the blurred image. Use the function imsharpen. Try different values of parameter C. What is the effect of parameter C that you observe?