Computer Science & Engineering Department
IIT Kharagpur

Image Processing Assignment #1
Marks: 50

Assign Date: August 24, 2015 **Submit Date: 23:55, September 07, 2015**

The Assignment:

Write a program in MATLAB / Java / C / C++ that will take a gray scale image as input and perform the following step by step composite spatial enhancement. Output the processed image after each step.

1. Read a gray scale image (F1).
2. Apply a Laplacian to enhance the fine details (F2)*.
3. Sharpen the image by adding F1 and F2 (F3).
4. Apply Sobel gradient operator on F3 (F4)*.
5. Smooth the image F4 by an averaging filter (F5)*.
6. Get the Mask image by the product of F3 and F5 (F6).
7. Do a high-boost filtering to sharpen the image F1 using the mask image F6 (F7)*.

Determine the appropriate size and parameter(s) of filtering so that the image is enhanced.

Suggest the inclusion/exclusion of some other steps to enhance the test image during demo.

Upload the zip file containing your program file as ass1_<roll> (with proper extension based on your programming language) and your test image file as test1_<roll>.

Credits:

1. Each step: 5 (×7)
2. Determine the size and parameter(s): 5
3. Demo: 10
4. Bonus on suggested inclusion/exclusion of steps: 10