Digital Image Processing

Homework#3
Power law transformation and High Boost

Power Law transformation

Power Law transformation

- Use Matlab to finish a program of Power Law transformation. (.m file)

- The function definition should be
  PowerLaw(imagePath, gamma)

- The result should be like figure 1.

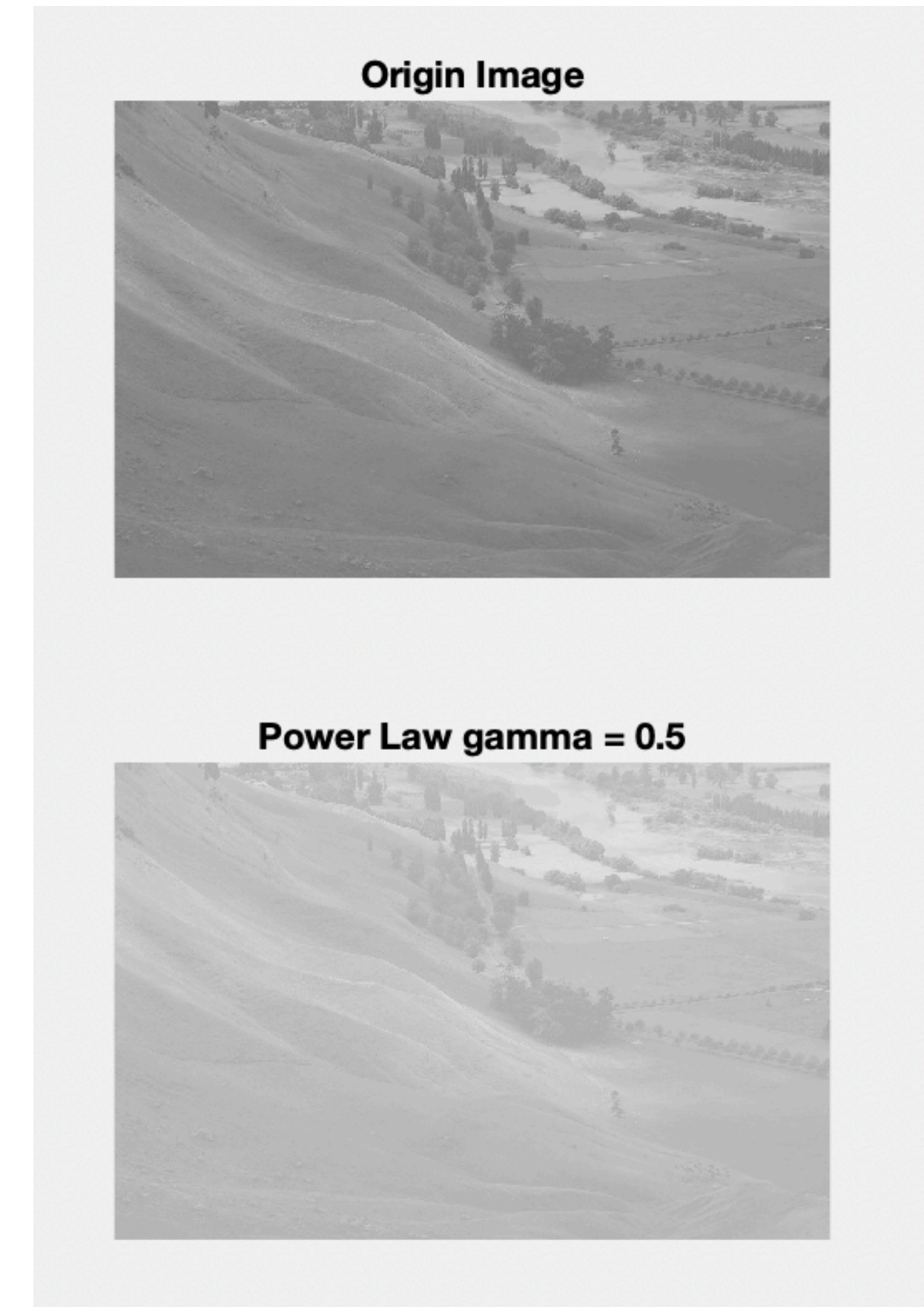- Do not use that power-law transformation built-in function, please finish by yourself.

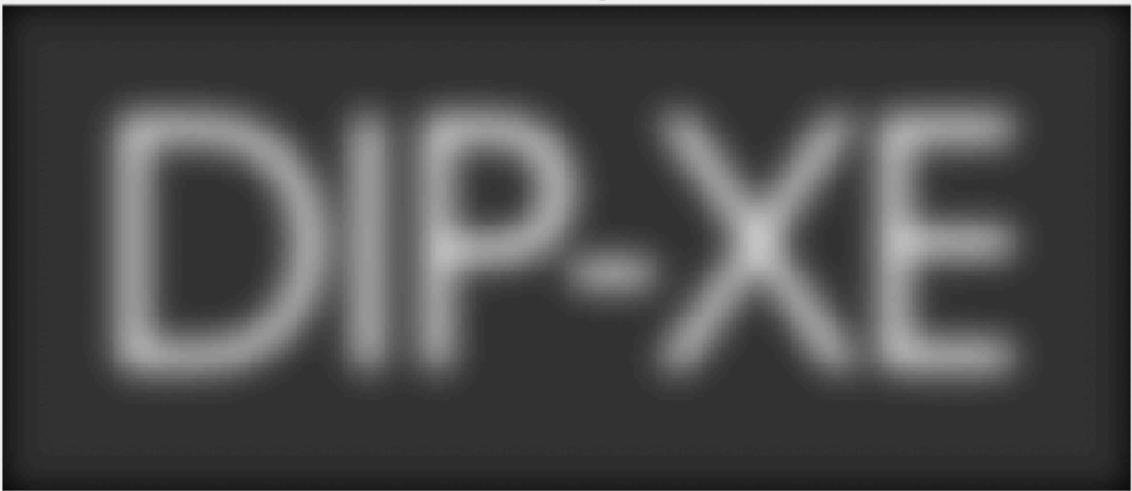Figure 1. Power-Law transformation result

High Boost Filter

High Boost

- Use Matlab to finish a program of High Boost Filter. (.m file)

- The function definition should be HighBoost(imagePath)

- High Boost Processing Step in textbook:

  1. Blur the original image

  2. Subtract the blurred image from the original (resulting difference is called "mask")

  3. Add the mask with parameter k to the original (k parameter is mask weight, ex: k=4.5 => g(x) = 4.5*mask)

Output Example

Origin Image[0,2...] | Blurred Image[0,255] | mask[-255 255]

k=1 [0 255] | k=4.5 High Boost image [0 255]

Other

- Use the fspecial() function to get the Gaussian filter, do not use the imgaussfilt().

- You can use the conv2() function to do convolution.

- If you get an error when compute the mask, pay attention to whether the type of matrix is wrong, the type of matrix should be **unsigned**.

- Do not use that High Boost built-in function, please finish by yourself.

- Because we have two files in our homework, please compress that to the zip file and the file name should be yourname_HW3.zip.

- If you are afraid that I can't execute your code, please give the description to let me execute your program.

- The homework deadline is 11/10 23:59:59.