Digital Image Processing 2015

HW-3：Image Restoration

Deadlines: **2015.11.11**-23:59:59

(1) Image Restoration (100%)

Given a few **blurred** bmp images, you are asked to write a program for **restoration** and save your outcomes as **bmp** images. There is no limit for your image processing design. The types of blur are:

■ **Motion blur**
■ **Gaussian blur**

Please do your best to handout a better-looking outcome.

The input files are:
- **image1_input.bmp**
- **image2_input.bmp**
- **image3_input.bmp**
- **image4_input.bmp**

Please evaluate the performance of your enhancement algorithm based on the following PSNR assessment

$$\text{PSNR} = \sum_{k=R,G,B} 10 \log_{10}\left(\frac{255^2}{MSE_k}\right)$$

where

$$MSE_k = \frac{1}{mn} \sum_{i=0}^{m-1} \sum_{j=0}^{n-1} \left\| C_{k,output}(i,j) - C_{k,origin}(i,j) \right\|^2 \quad , \quad k = R, G, B$$

And compare the performance of your methods. **The original images can be used only for computing PSNRs.**

(2) Bonus

Find one of your own "blurred" images and restore it!

Reminders:

☐ Please make sure your source code can be compiled by **Microsoft Visual Studio** / **DevC++ / Matlab**.

☐ **Two members** a group for this homework. Hand one report each group.

☐ Don't use too powerful toolbox-functions.

Hints:

☐ Start your work as soon as possible!