Digital Image Processing (2016)

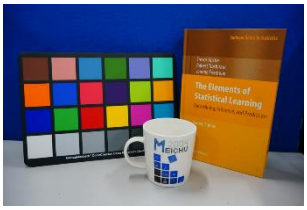
Homework 1

[Image input/output + Resolution + Scaling]

Deadline: 2016.10.6

Image input/output (30%)

Using C++ or C , accomplish File Read Write of BMP format.
Please notice Bit Depth of the images



[Input] input1.bmp input2.bmp
[Output] output1.bmp output2.bmp

Demo: Run and check the output files.
Report: Explain BMP format in at most 2 pages (A4).
File: imgRWbmp

Resolution (30%)

Using C++ or C , accomplish the discussion of Quantization Resolution.
Please refer to the lecture slide (Fundamentals, page 17).

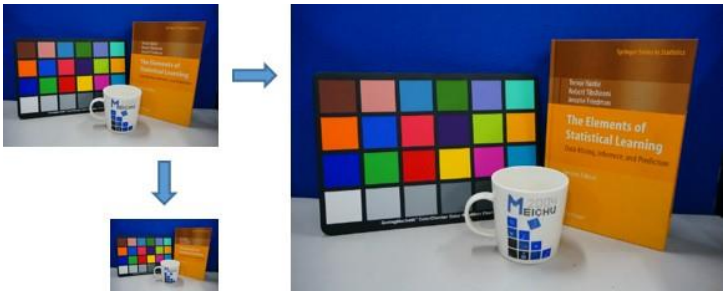
[Input] input1.bmp input2.bmp
[Output] output1_1.bmp output2_1.bmp
output1_2.bmp output2_2.bmp
output1_3.bmp output2_3.bmp

Demo: Run and check the output files.
Report: Do some discussion and explain how you do it in at most 2 pages (A4).
File: imgQR

Scaling (40%)

Using C++ or C , accomplish Up-scaling and Down-scaling by Bilinear Interpolation with rate 2.

Please refer to the lecture slide (Fundamentals, page 24).



[Input]	input1.bmp	input2.bmp
[Output]	output1_up.bmp	output2_up.bmp
	output1_down.bmp	output2_down.bmp

Demo: Run and check the output files.
(scalingDemo.bmp)

Report: Do some discussion and explain how Bilinear Interpolation works in at most 2 pages (A4).

File: imgScaling

Digital Image Processing (2016)

Homework Rules and Grading Policy

Homework will be graded by:

1. Correctness.
2. Algorithm description
3. Discussion

Upload:

[FTP]	140.113.238.220
[Port]	634
[Username]	DIP2016
[Password]	DIP2016
[File Name]	hw1_StudentId.zip (ex. hw1_1234567.zip)
	hw1_StudentId_v2.zip

Remind:

1. Your C or C++ code with comments
2. Your report in the format of .pdf
3. ReadMe.txt file which describes how to run your program
4. Hand in a hard-copy of your report in the class on the due date
5. Deadline

   If you have a late submission by 1 to 7 days, you will only get 70% of the score.

   We DO NOT accept any late submission after 7 days after the deadline.