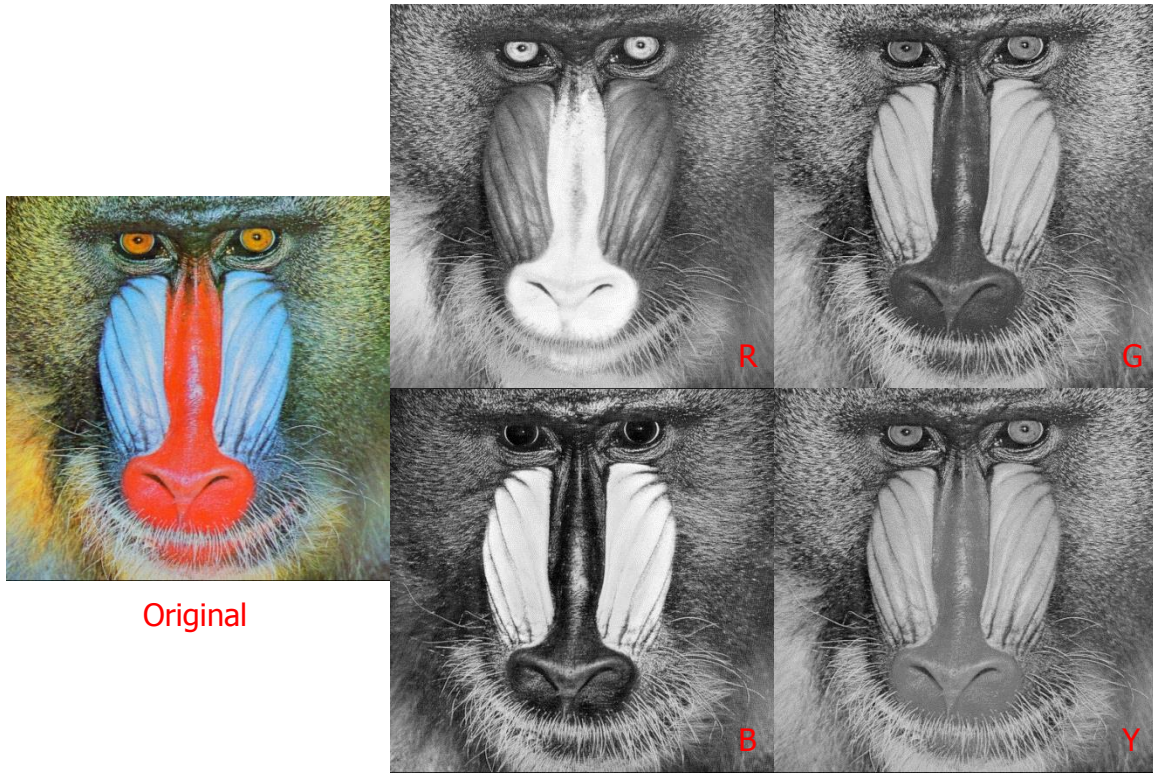


Digital Video Technology

Homework #1 – Color Transform

2015/09/22

Please use "lena.raw" on the course website and have its color representations in terms of RGB, YUV and YIQ.



- Your program should read 512x512 color image (in RGB raw format).
- This program should generate 8 grayscale image files (in raw format), each output image containing one color component (R, G, B, Y, U, V, I, Q). For U, V, I, and Q, please normalized their value range to 0~255.
- Note: formulas are shown in page 32 of 01_introduction-2015.pdf

Requirements:

1. Deadline: 2015/10/05 11:59 PM
-10 points / day
2. All the files need to be compressed as a single ZIP or RAR file.
Send this file to TA via FTP:
Address: 140.112.175.53 Port: 6250
Account (password):
The same as the one used in the course website.
Examples of filename:
DVT_HW1_R04901001.zip
DVT_HW1_R04901001_Ver2.zip
3. Required files:
 - a. Report, in PDF format
(With pictures, you can use downscaled images in report)
 - b. Source code (C/C++)
Do NOT send entire project to TA!!
Please include your makefile if you have one.
All TA needs are related *.cpp/*.c files.
 - c. Executable file (*.exe)
 - d. Text document (*.txt): a "readme" file, which may describe how to execute your program, the compiler you use, and your output file names.
 - e. Bonus (10%): Convert to YUV420 raw file by choosing the top-left pixel for each 2x2 U/V block, then convert it to RGB again and save as RGB raw format. Please compare the distortion between RGB raw files before and after the conversion, and make some discussions in your report. The distortion can be represented by PSNR. Note that after color space transform, some pixels might overflow, and your program should be able to handle this problem.
4. Any further questions, please email to TA
(郭品宏, setsunil@media.ee.ntu.edu.tw)