

CMPS/EECE 508 Image Processing

Assignment 2

Due: Oct 27, 2009; in class before the lecture begins

If you email your report, your file names should begin with your last name.

Write an OpenCV program that

- Reads in a color picture
- Converts the color picture to its luminance-chrominance components
- Compute a “texture map” for the luminance component:
 - For each 8 by 8 block
 - compute the variance of the luminance values.
 - Compute the “R” measure for that block based on the variance σ^2 :
$$R = 1 - \frac{1}{1 + \sigma^2}$$
 - Scale the “R” measures for the entire image by either mapping the [0,1] interval to [0,255] or mapping the range [0, maximum] to [0, 255].
 - The scaled “R” measure for each block is the output pixel value for the corresponding 8 by 8 block.
- If your picture dimensions are not divisible by 8, your blocks on the last row or last column may each have fewer than $8*8=64$ pixels. Or, you may choose to ignore those blocks on the last rows and columns and set their values to 0 in the texture map. Describe your choice in the report.

Turn in a report that includes

- A description of your work
- your source code
- compilation instructions for your source code (specify which machine your program was compiled and tested on)
- a discussion of your results

Your report will be graded based on these criteria:

- readability/comprehensibility of your code
- efficiency of your code
- correctness of your solution
- discussion in your report

The academic honesty policy applies to this assignment. Specifically, you must disclose any help that you gave or received in completing this assignment. You must disclose the source of any material that you turn in that did not originate from you.