

UNIVERSITY OF CRETE
DEPARTMENT OF COMPUTER SCIENCE

Multimedia Technology

Spring 2018

5th assignment

The objective of this homework is the comparison of well-known image compression algorithms. At first the entropy is computed for each chromatic component separately, in both *RGB* and *YCBCR* colour systems. Then the image coding formats PNG, GIF, JPEG and JPEG2000 will be compared. For the two first (PNG, GIF) the image will be converted to indexed image using minimum variance vector quantization method with 64 and 256 colours in both colour systems.

For the lossy coding methods (JPEG, JPEG2000) compression ratios from 10 to 50 will be tested, uniformly distributed in this interval. It is asked to measure the compression ratio and the signal to coding error ratio given in *db*. The signal to coding error ratio is given by $20 \log_{10} \frac{255}{e}$, where e is the square root of the mean square error, taking into account the three colour components. The results should be plotted for all the coding methods and all the images in order to enable comparisons. In the comparison should appear also the PNG and GIF encoders, as loss of information results in this case too, due to vector quantization of colours.

The report of the homework should be given in HTML with all the results and conclusions.

Useful Matlab functions : *entropy*, *imwrite*, *imfinfo*, *rgb2ind*, *rgb2ycbcr*, *plot*

Image data are given in

<http://www.csd.uoc.gr/~hy474/data/MSRC.7z>