<u>Image Processing Optional Homework</u>: Image Compression

Implement in MATLAB an algorithm that can reconstruct images as linear combinations of the DCT bases.

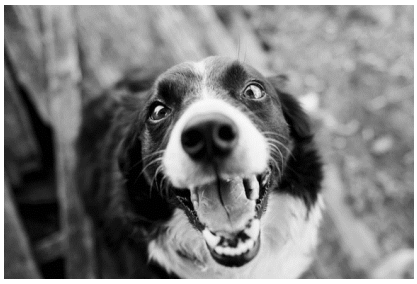
Your algorithm should take as input a gray scale image, and the desired ratio of compression, then output the compressed image. The ratio of compression will refer to the number of low frequency terms used to reconstruct the image over the number of pixels the original image has. To compress the image, we will neglect the higher frequency terms that describe that image; you can do this by setting those terms to zero.

Please include a 1-page report (in PDF) explaining the theory and show some sample results. All files should be submitted in a single ZIP with your name.

Consider MATLAB's documentation on performing the DCT on matrices.

Here is an example:

Original Image:



Compressed Image 10 to 1: (10% of DCT terms used to approximate the original image)

Compressed Image 10 to 1: (3% of DCT terms used to approximate the original image)