MATLAB EXPERIMENT

- Consider an image of size $N \times N$. The pixel $(0,0)$ is located on the top left corner. You can take an image with your camera/iphone.

- Calculate the DCT of the image.

- Take a small image patch of size $i \times i$ located on the top left part of the DCT transformed image. This patch contains the low frequencies of the original image.

- Calculate the fraction of the total image energy $e(i)$ that is contained on the patch of size $i \times i$.

- Repeat the above experiment for $i = 1, \dots, N$.

- You realise that the smallest possible patch is of size 1×1 (one DCT value only is kept; the $(0,0)$ value) and the largest possible patch is of size $N \times N$ (the entire DCT image is kept).

- Plot $e(i)$ as a function of i.

- Repeat the above experiment for the ordered Hadamard transform.

- Repeat the above experiment for the non-ordered Hadamard transform.