EE7204 – Computer vision and Image Processing

Take Home Assignment 1

Write Python programs to perform following image processing operations.

1. To reduce the number of intensity levels in an image from 256 to 2, in integer powers of 2. The desired number of intensity levels needs to be a variable input to your program.

2. Load an image and then perform a simple spatial 3x3 average of image pixels. Repeat the process for a 10x10 neighborhood and again for a 20x20 neighborhood.

3. Rotate an image by 45 and 90 degrees.

4. For every 3×3 block of the image (without overlapping), replace all corresponding 9 pixels by their average. This operation simulates reducing the image spatial resolution. Repeat this for 5×5 blocks and 7×7 blocks.

Submission: GitHub link to the code and the results.