

EC7212 – Computer Vision and Image Processing

Take Home Assignment 1

Write Python programs to perform the 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 3x3 block of the image (without overlapping), replace all the corresponding 9 pixels by their average. This operation simulates reducing the image spatial resolution. Repeat this for 5x5 blocks and 7x7 blocks.

Submission: Report including the code and the results (Include the GitHub link).