MCA HW-1

Q1:

An auto correlogram has been formed.

The distance vector = [1, 3]

The image has been resized to 64*64 for faster results. It has been quantized into 64 gray levels.

The results are as follows:

Maximum Precision 0.11494252873563218

Minimum Precision 0.0

Average Precision 0.016897562135187772

Average Precision here is 0.02 i.e. if this algorithm matches a image correlogram to another image, it is correct 20% of the time.

Maximum Recall 0.11494252873563218

Minimum Recall 0.0

Average Recall 0.016897562135187772

Average Recall here is 0.02 i.e. algorithm gives 20% of correct results.

Maximum F1 Score 0.02148458481039854

Minimum F1 Score 0.0

Average F1 Score 0.002043591914406492

Average Retrieval Time 1.8305061585975415 s

Average Good Retrieved 1.5281940281940283

Average Junk Retrieved 1.7675122368853833

Average Ok Retrieved 1.8192589891496536

Q2:

The image has been resized to 64*64 and quantized into 64 gray levels. The basic idea of blob detection algorithm is:

- Convolve image at different scales (using different values of sigma)
- Find maximum of squared Laplacian response

In this algorithm, I have used 9 different scales (i.e. 9 sigma). Thus, image is sliced into 9*64*64. The peak is found. For each pixel, there is a max value but not all pixels contribute to blobs. In this algorithm, threshold has been taken as **0.03** to eliminate other maximas.

Below is a result of blob detection algorithm on an image.