Image Processing Proposal

Problem Statement:

Microscopic Images are taken in plenty due to the presence of abundant noise in the images. When a set of noisy snapshots of the same image are given, is there a way to denoise the image and find an output image.

Procedure:

Algorithm

1. First N samples of an image are assembled which are corrupted by Gaussian random noise

2. As per the algorithm, denoising of each row has to be done separately.

3. In order to denoise a particular ith row,

3.1. Form a matrix comprising of the ith rows of the various image samples.

3.2. Singular value decomposition of the normalized matrix is then carried out.

3.3. Subsequently a threshold is applied on the eigen values, matrix based on the random matrix result.

3.4. We reconstruct the matrix of the rows using the eigen-values greater than λmax and extract the denoised row.

4. We reconstruct the image from each of these denoised rows.

Data:

Identified.

Lena image of different noise strengths are created.

Implementation :

This is to be implemented on matlab or python