1 Aim

The paper assumes speckle noise to be multiplicative and approximates it to follow a Rayleigh distribution,whose only varying parameter is the noise variance. The image's logarithm is taken to convert the noise to additive. This corrupted image's parameters are fed to a neural net which tries to estimate the noise variance. Using the noise variance and the Rayleigh distribution formula, the inverse of the corrupted image is found to obtain the clean image.

2 Issues with this approach

The neural network cannot train for sigma values that are less than 4. The Raleigh affected pixel $R_x = xexp(-x^2/2\sigma^2)/\sigma^2$ This suggests that beyond a sigma value of 2 there is hardly any difference between the original image and the transformed image. A histogram indicating the difference between the original and corrupted intensities for ten randomly chosen pixels for various values of sigma. Further as literature suggests the approximation of speckle noise to a Rayleigh distribution is not ideal.

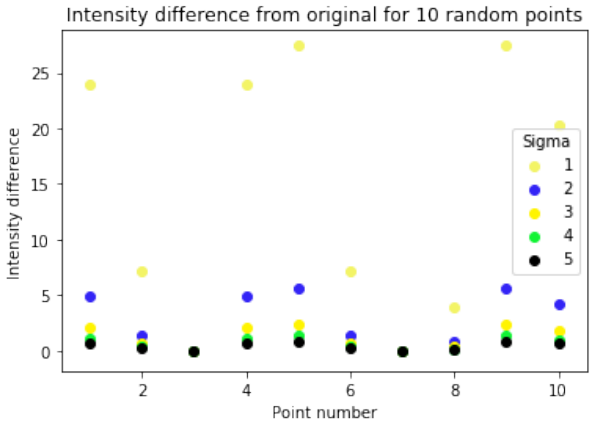

Figure 1: Flow chart