

Optional Assignment: Noise Removal & Histogram Techniques

1) In the previous assignment, you have implemented various noise removal techniques. Only visual inspection about how good the results are was done (qualitative analysis). For a systematic study, it is important to have a quantitative measure for performance. One such method is to evaluate PSNR (Peak-signal-to-noise-ratio).

Perform the following:

- i) Take a clear image. Eg. gray/bat.jpg
- ii) Artificially add noise with varying percentages (1%, 10% 40%). For eg. Add salt & pepper noise, Gaussian noise ($\sigma=5,15,20$) and both noise in single image. Compute PSNR for these by applying various noise removal techniques and tabulate the result and draw conclusions.

% Noise	Noise Type	Technique for noise removal	MSE	PSNR
1	Salt & Pepper	Mean filter		
1	Gaussian ($\sigma=5$)	Mean filter		
1	S&P + Gaussian(σ)			
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2) Implementation of “Image Mosaic”. Take a back-image (size about 1000x1000). Take an inset image and perform image mosaic of these. Before starting to write the code, be sure to think out the algorithm. It might be helpful to create a function for histogram matching. Your result should look somewhat similar to the one shown in slide on histogram.