

CS3712 - Image Processing
Noise filter implementation results

Index No: 190290U

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1. Mean filter

Function: `applyMeanFiltering(image, kernelSize)`

Parameters:

- `image`: The matrix representation of the input image
- `kernelSize`: The number of rows or columns of the kernel (preferably an odd number)

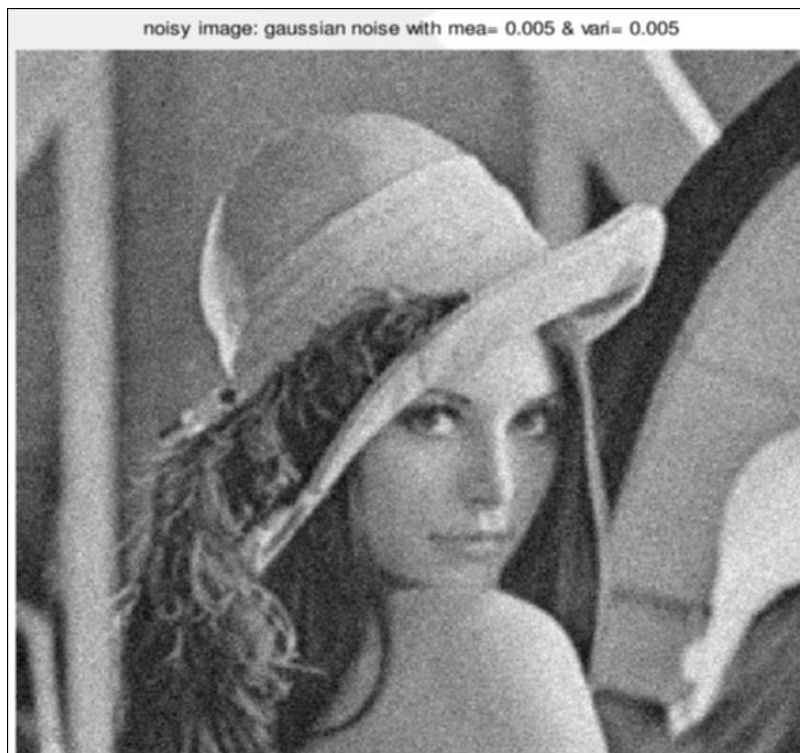
returns: The matrix representation of the output image

Original image:

noisy image: gaussian noise with mea= 0.005 & vari= 0.005



Result when `kernelSize = 3`



Result when kernelSize = 5



Result when `kernelSize = 7`



2. Median filter

Function: `applyMedianFiltering(image, kernelSize):`

Parameters:

- `image`: The matrix representation of the input image
- `kernelSize`: The number of rows or columns of the kernel (preferably an odd number)

returns: The matrix representation of the output image

Original image:



Result when `kernelSize = 3`



Result when `kernelSize = 5`



Result when `kernelSize = 7`



3. K-closest averaging filter

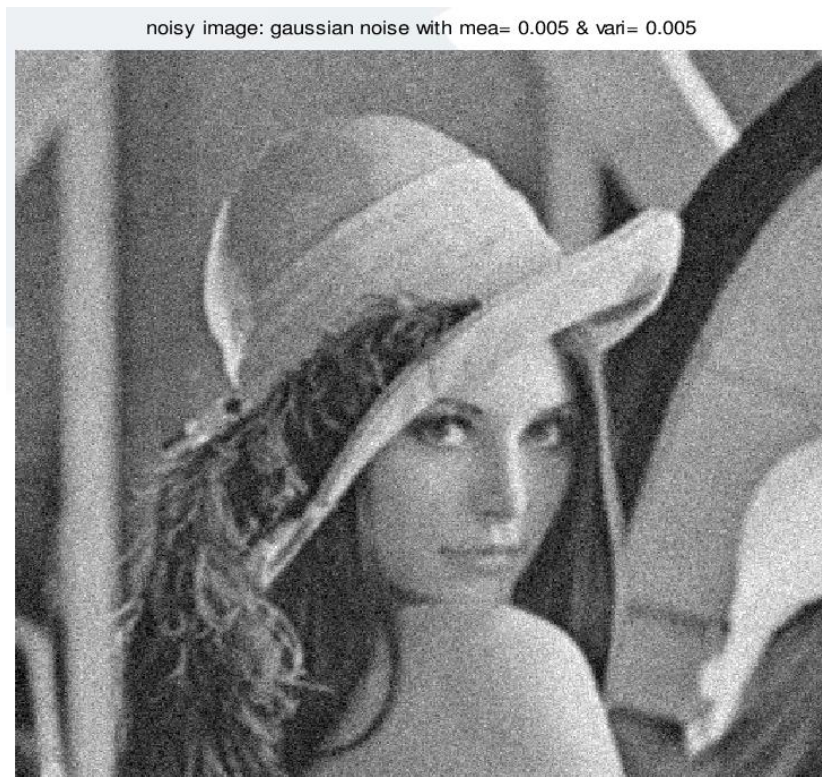
Function: `applyKClosestAveraging(image, kernelSize, K)`

Parameters:

- `image`: The matrix representation of the input image
- `kernelSize`: The number of rows or columns of the kernel (preferably an odd number)
- `K`: The K value which determines the effective number of elements in the kernel that is considered (Should be less than or equal to square of `kernelSize`)

returns: The matrix representation of the output image

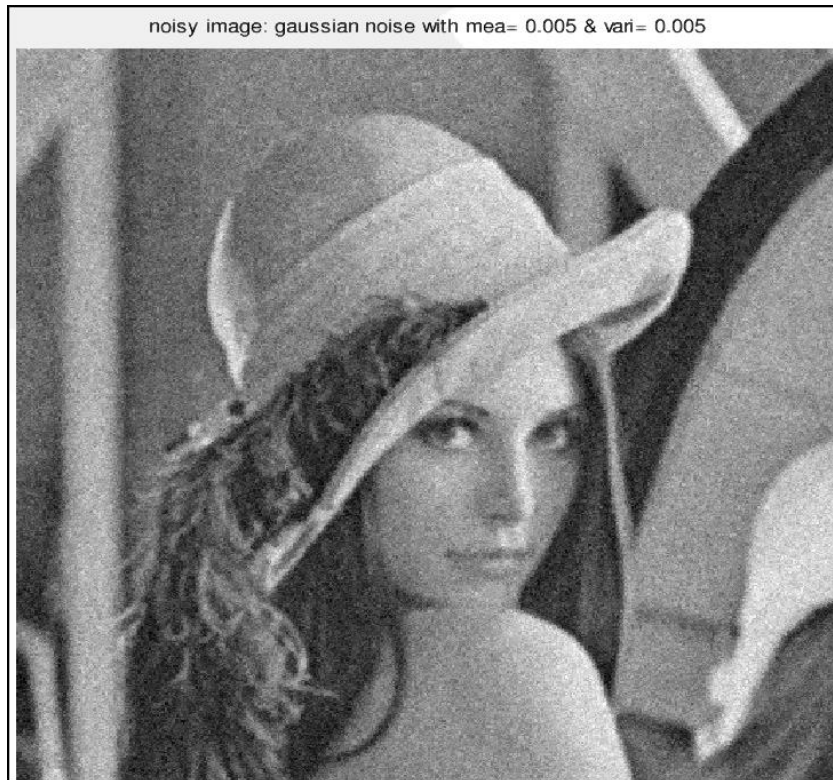
Original image:



Result when kernelSize=5 and $\kappa=23$



Result when kernelSize=5 and K=8



4. Threshold averaging filter

Function: `applyThresholdAveraging(image, kernelSize, T)`

Parameters:

- `image`: The matrix representation of the input image
- `kernelSize`: The number of rows or columns of the kernel (preferably an odd number)
- `T`: The threshold value ($0 < T < 255$)

returns: The matrix representation of the output image

Original image:

noisy image: gaussian noise with mea= 0.005 & vari= 0.005



Result when kernelSize=5 and T=25

noisy image: gaussian noise with mea= 0.005 & vari= 0.005



Result when kernelSize=5 and T=210

