Dictionary Based Filtering

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3. We are planning to do low pass or high pass filtering to de–noise the noisy image.Low pass filter is used to remove salt and paper noise while high pass filter is used to sharpen the image and extract details from image.
4. We use OpenCV libraries and Python libraries to implement the low pass filter and to create blocks of image.

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2. An effective noise reduction method for this type of noise is a median filter.

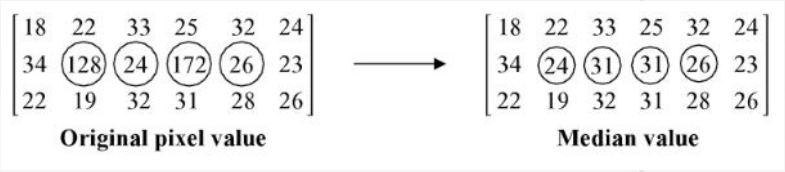

Figure: Median Filter

First of all we have to take n x n training image.
Create m x m blocks.
Create dictionary using blocks.
Dictionary:

Key - Noisy image

value - filtered image

Search algorithm

if *Nearest Possible Match* **then**

| Noisy Patch Replaced with this Image

else

| Add to Dictionary

end

return **Final Filtered Image**

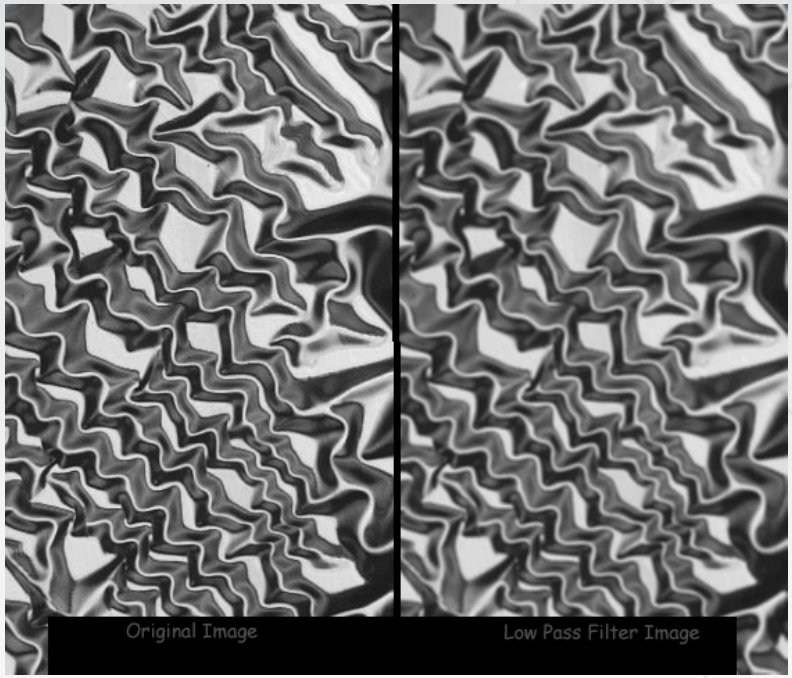

Figure: output

There is always trade-off between accuracy of result and size of dictionary.

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