Image processing course – homework #4

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You are given 8 bad images to enhance/clean/restore.

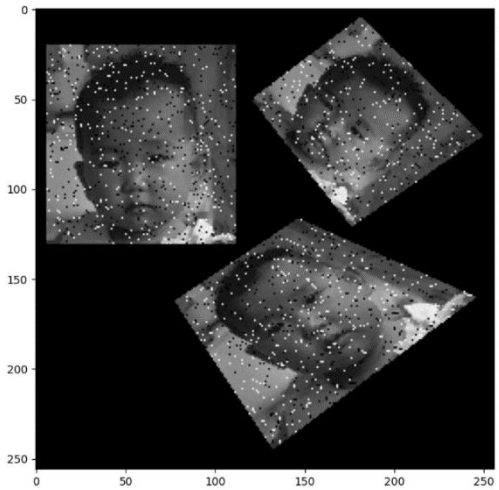
You are free to use a method of your choosing, the marks will be given based on the optimality of your method/result.

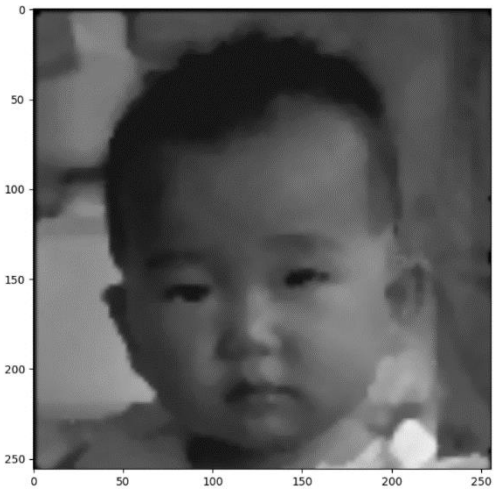
Notes:

- You can use anything we learned: Gamma corrections, Histogram equalization, filters convolutions (gradient, median, bilateral, sharpening… etc), Fourier transform and manipulations in frequency domain.
- Implement each cleaning method inside the function for it.
- You can use built in functions from cv2.
- More hints will be given to those who ask in the forum.
- Use the script to visualize your results – do not submit it.

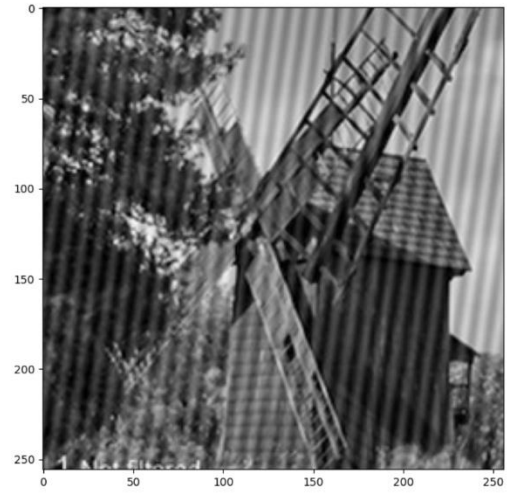
My Results with hints:

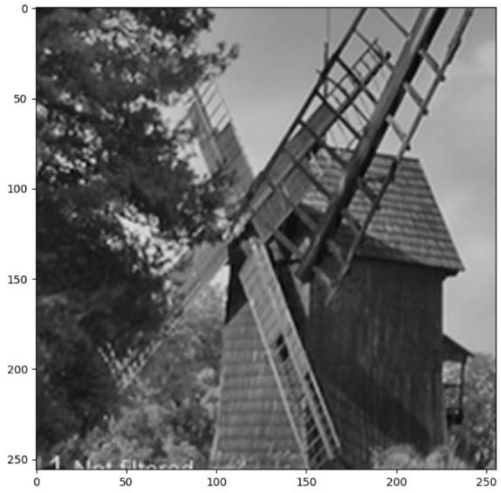
There are 3 images, utilize **all three**:



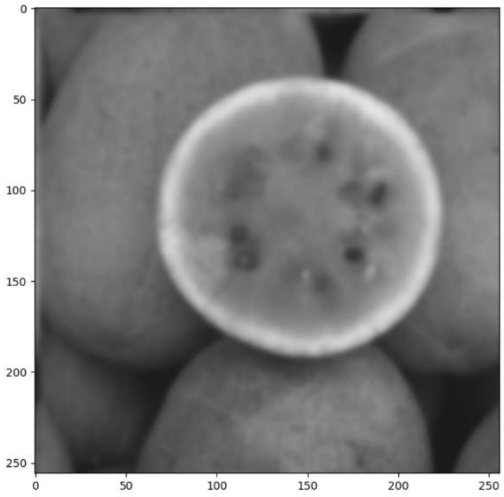


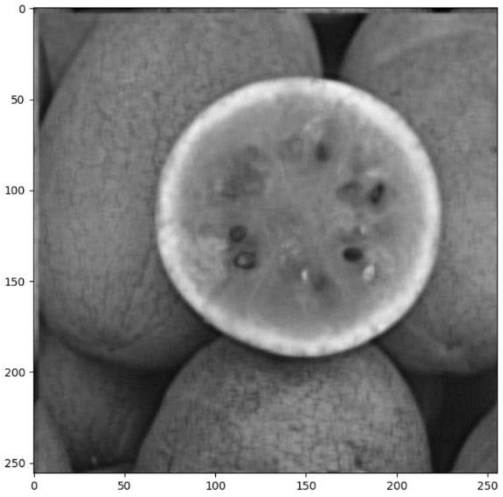
This is an image with a noise of a very specific frequency:



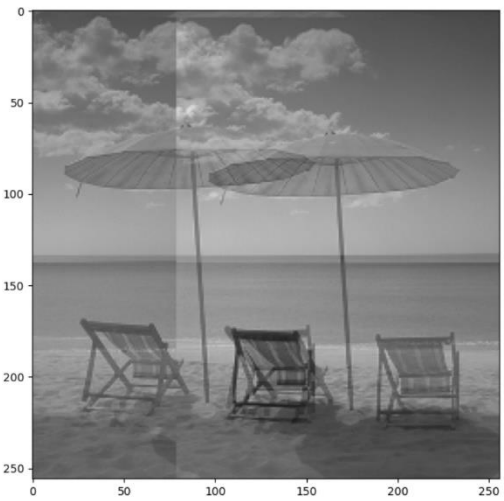


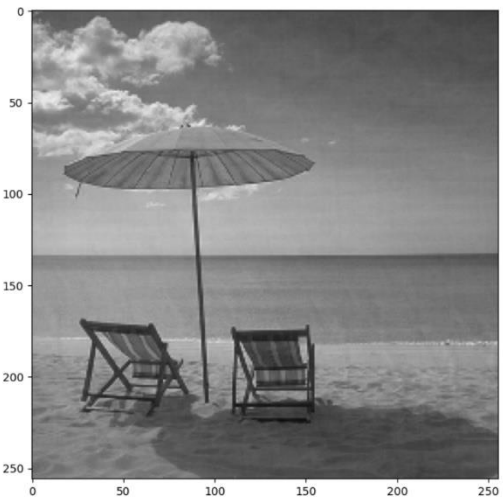
Which filter sharpens an image (Went over this in the tutorial):



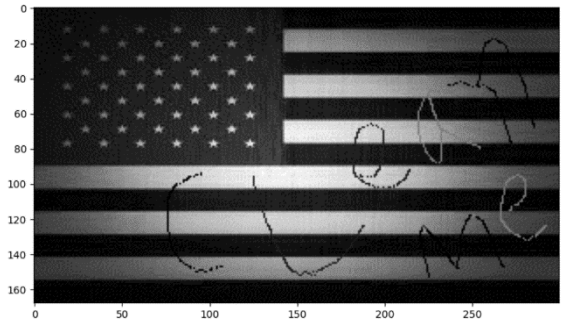
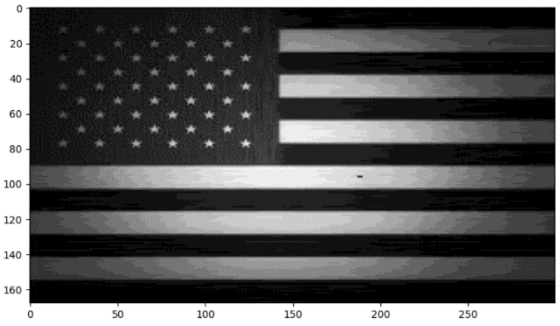


The noised image is a result of an average between original image and a shift of the original image:

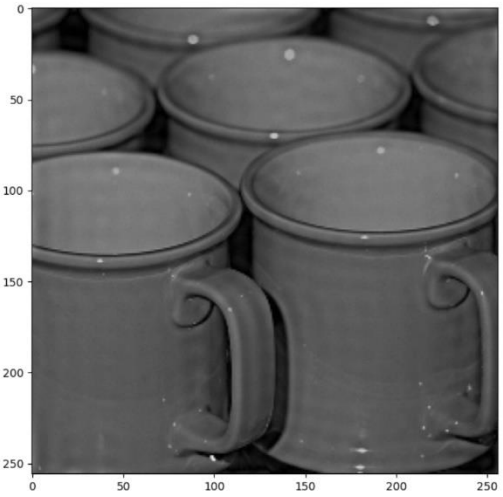
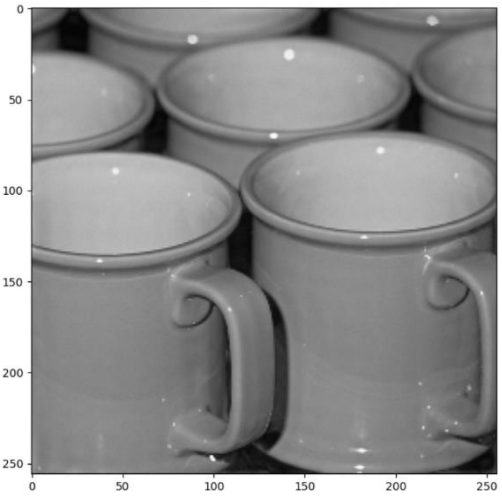




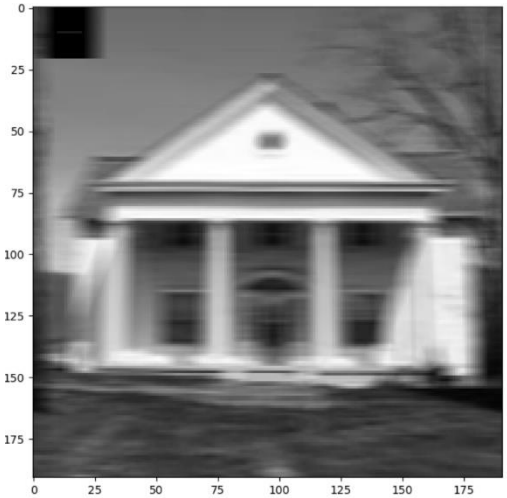
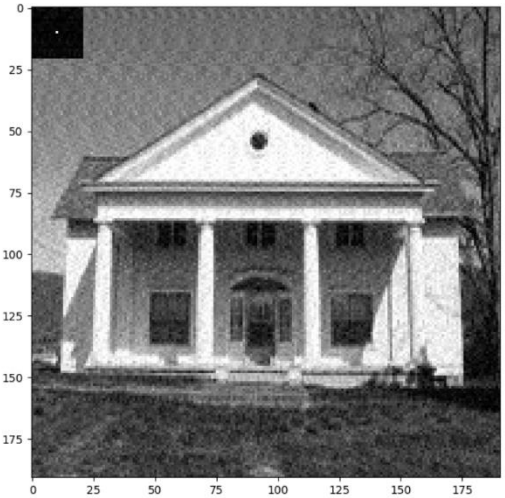
Clean me:

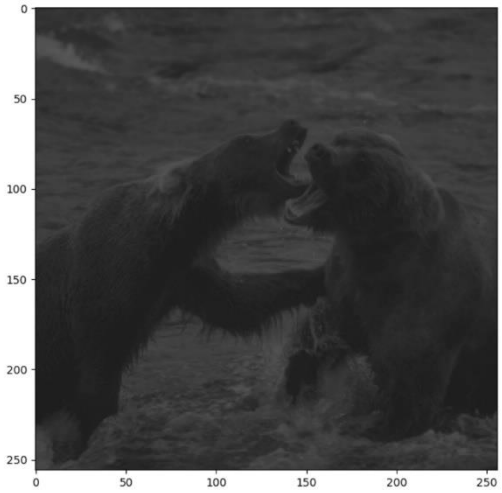
No idea what pattern the noise is, but it sure moves fast:

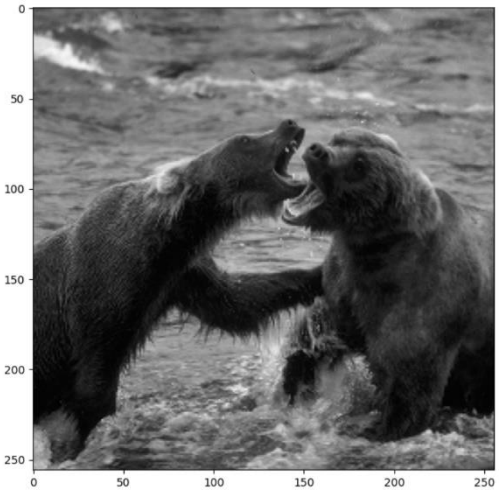



Someone took 10 images of a house while moving (motion blur), the result is 10 shifted images averaged in one:

Pretty dark in here, like all the gray values are low:





Submission

Please submit one .py file with the functions implemented

Name the file **hw4_123456789.py** (or in case of pair: **hw4_123456789_987654321.py**)

(Replace 123456789, 987654321 with your ids)

Good luck!