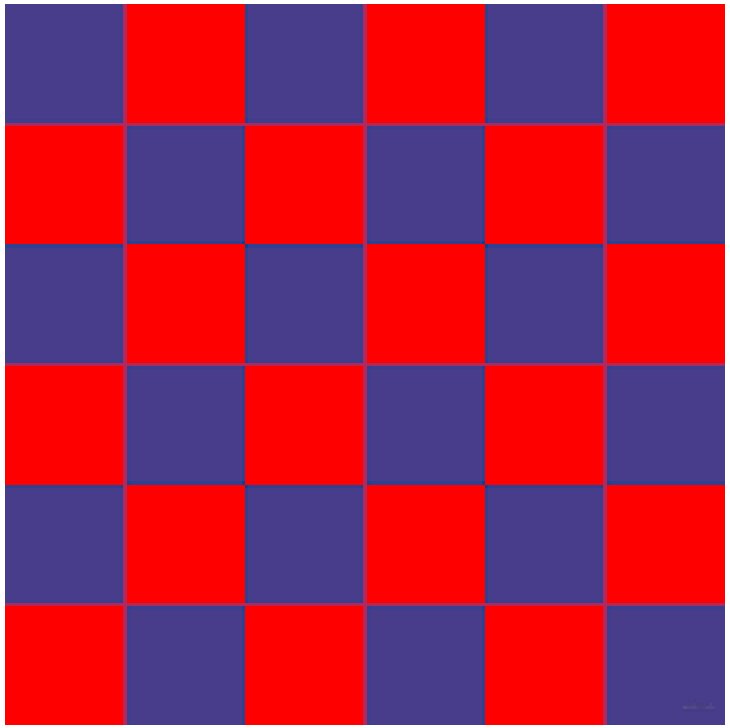
Homework 1 (Due Feb. 15th)

- Problem #1 (warm-up)： generate the following image

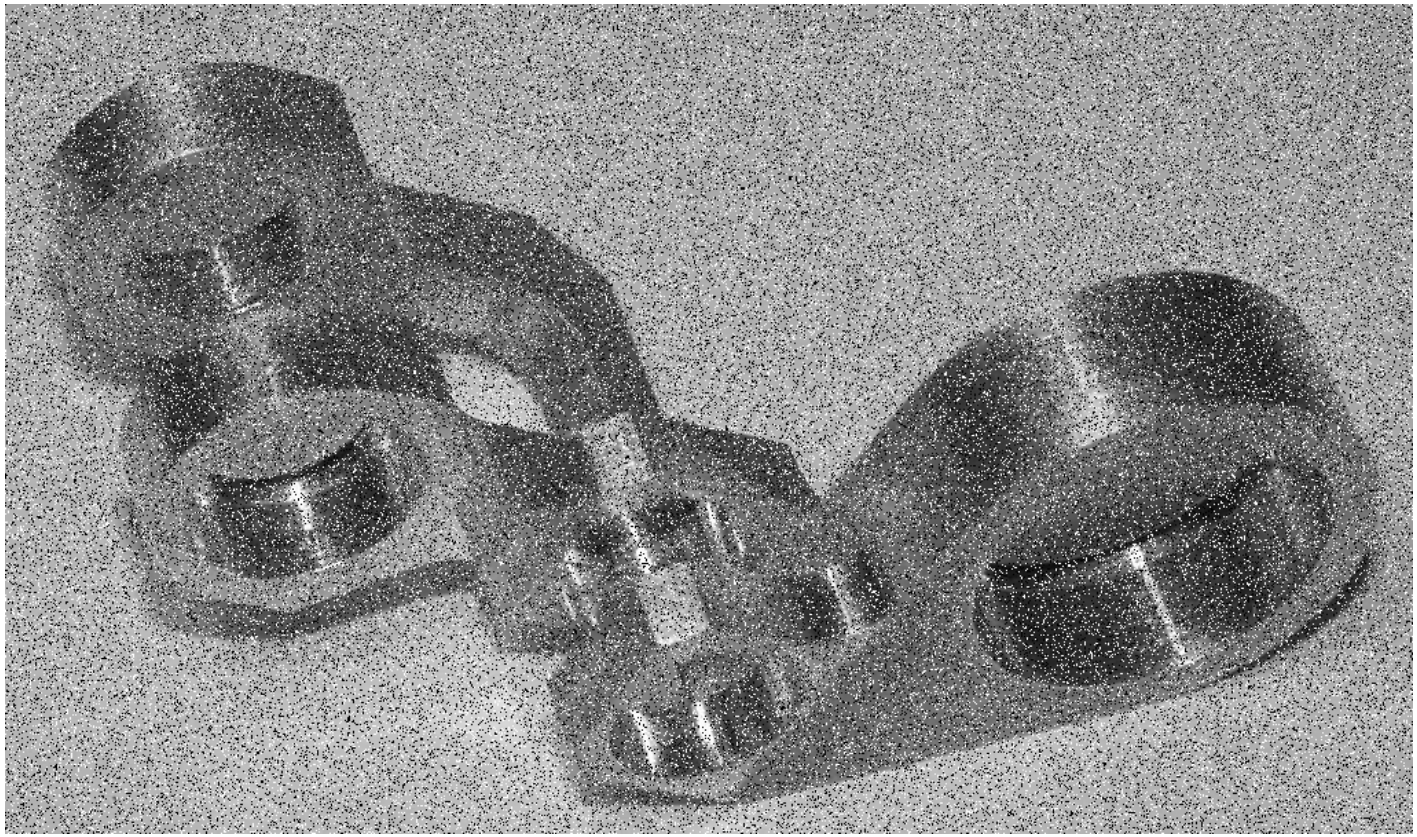


Homework 1 – cont'd

- Problem #2: perform mean, median and gaussian filtering for a given image "part.png" with sizes 3x3, 11x11 and 31x31, (Note: ME 556 students must design your own filters. I.e., matlab build-in functions such as imgaussfilt, fspecial or imfilter should not be used, it's okay for ME 456 students to use them)

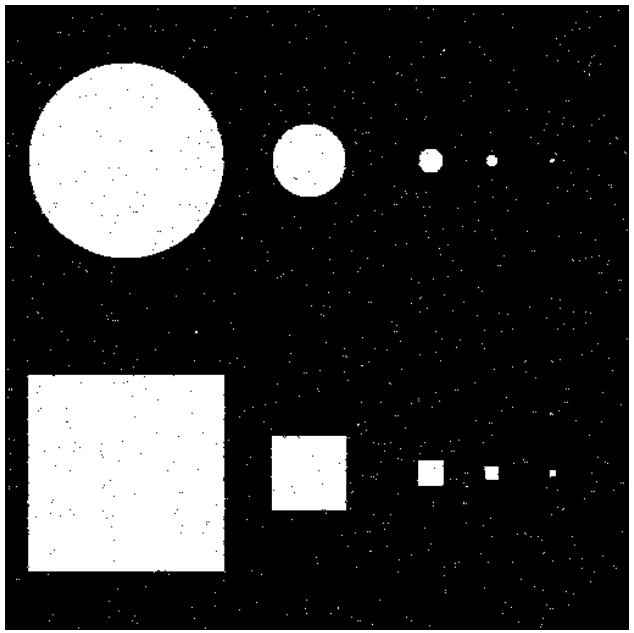
Homework 1 – cont'd

- Problem #2 test image

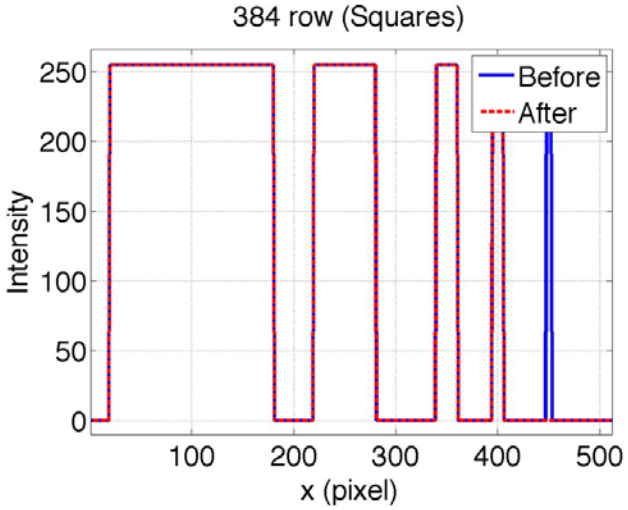


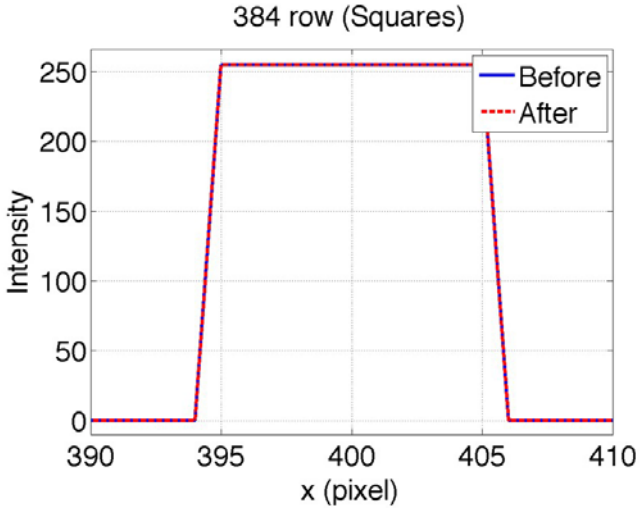
Homework 1 – cont'd

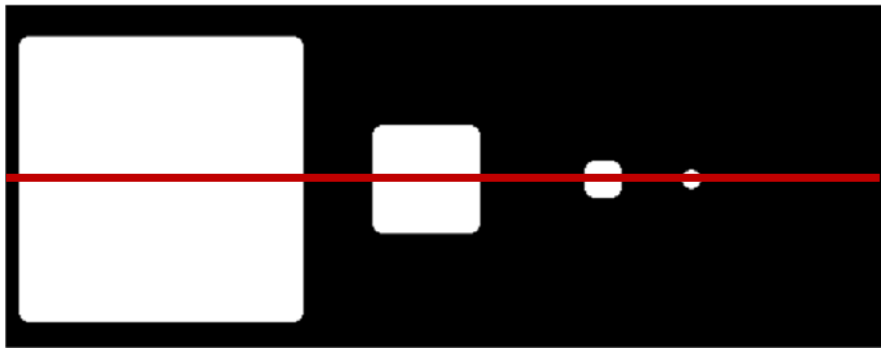
- Problem #3 – demonstrate the edge shift of a 3x3, 11x11 and 31x31 median filter using matlab plots, test with "SquareCircle.png";



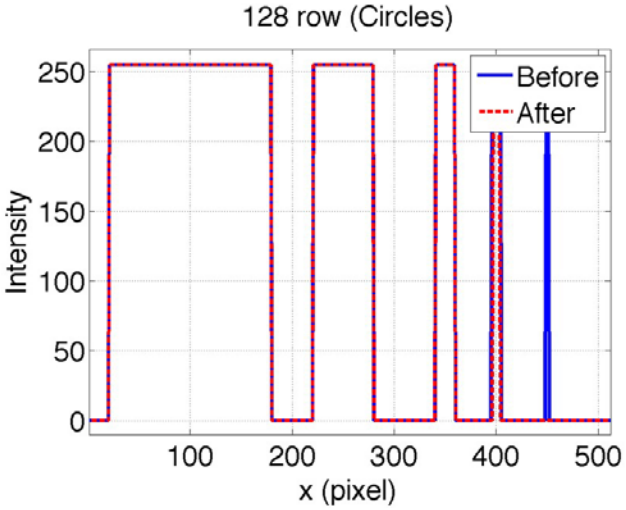
Squares

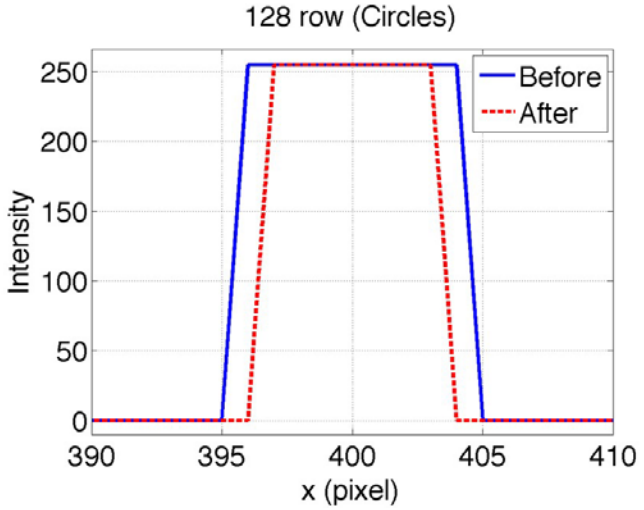

384 row (Squares)
Before
After
Intensity
x (pixel)
0
50
100
150
200
250
100
200
300
400
500

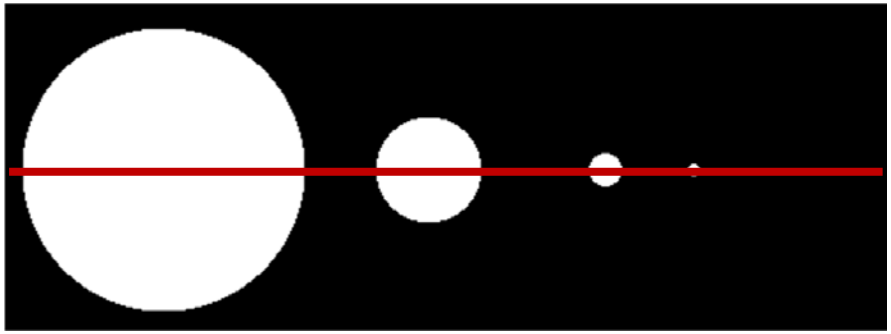

384 row (Squares)
Before
After
Intensity
x (pixel)
0
50
100
150
200
250
390
395
400
405
410



Circles


128 row (Circles)
Before
After
Intensity
x (pixel)
0
50
100
150
200
250
100
200
300
400
500


128 row (Circles)
Before
After
Intensity
x (pixel)
0
50
100
150
200
250
390
395
400
405
410



Homework 1 – cont'd

- Problem 4 (open ended question): Filter noises using a combination of any filters you prefer to ensure that you have reasoning behind it.
- Testing image LenaNoise.png

Problem #4 test image

Requirement

- Write a lab report showing your results for each question
- Submit your lab report and all your source code through canvas homework submission link (due Feb. 15th, midnight)
- If you used a small piece of code from other places, make sure you include proper citation