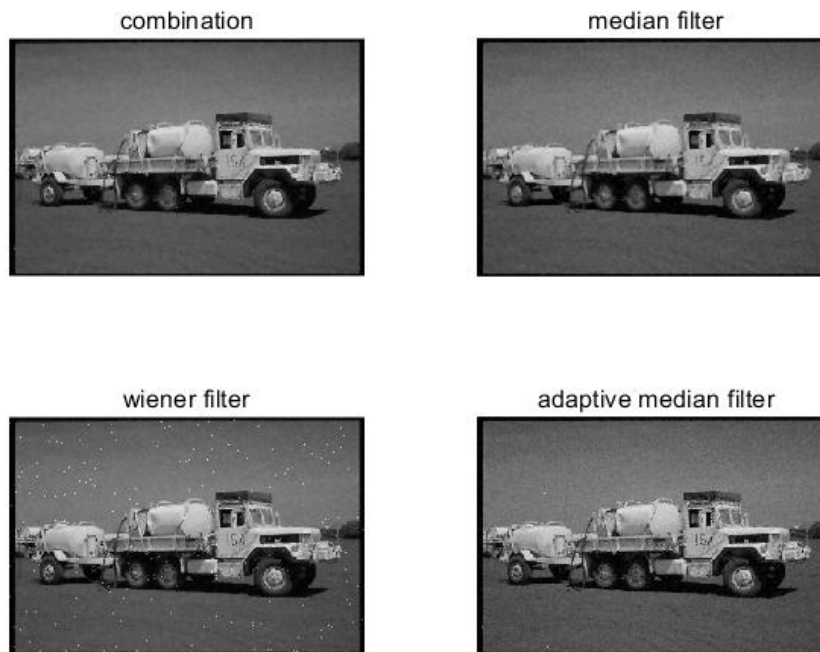


EECS225B–Spring 2020 — PROBLEM SET 05

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1 Problem 1

I combine the Weive Filter after the adaptive median filter to get the result of the first image.



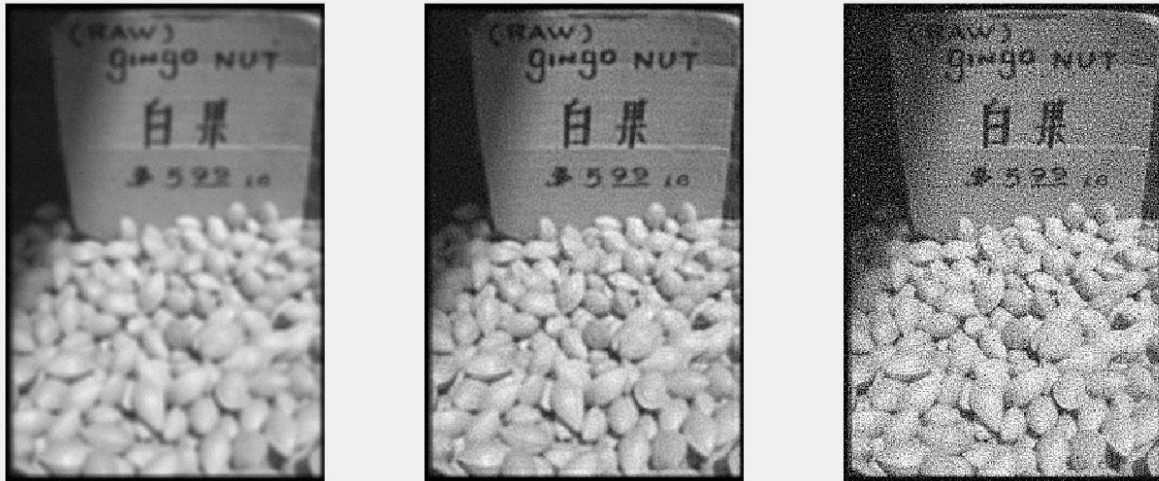
```
1 — img = imread('NoisyImg.bmp');
2 — % subplot(2,2,1);imshow(img);title('origin');
3 —
4 — % Median
5 — img_m = medfilt2(img);
6 — subplot(2,2,2);imshow(img_m);title('median filter');
7 — imwrite(img_m, 'Median.bmp');
8 —
9 — % Wiener
10 — img_w = wiener2(img);
11 — subplot(2,2,3);imshow(img_w);title('wiener filter');
12 — imwrite(img_w, 'Wiener.bmp');
13 —
```

```

14     %adaptive midian
15 —     img_adam = img;
16 —     img_adam(:) = 0;
17 —     rmin = 3;
18 —     rmax = 9;
19 —     fg=false(size(img));
20 —     for k=rmin:2:rmax
21 —         zmin=ordfilt2(img, 1, ones(k, k), 'symmetric');
22 —         zmax=ordfilt2(img, k*k, ones(k, k), 'symmetric');
23 —         zmed=medfilt2(img, [k k], 'symmetric');
24 —         processB=(zmed>zmin)&(zmax>zmed)&(~fg);
25 —         zB=(img>zmin)&(zmax>img);
26 —         outputZxy=processB&zB;
27 —         outputZmed=processB&~zB;
28 —         img_adam(outputZxy)=img(outputZxy);
29 —         img_adam(outputZmed)=zmed(outputZmed);
30 —         fg=fg|processB;
31 —         if all(fg(:))
32 —             break;
33 —         end
34 —     end
35 —     img_adam(~fg)=img(~fg);
36
37 —     subplot(2, 2, 4);imshow(img_adam);title(' adaptive median filter');
38 —     imwrite(img_w, ' AdaptiveMedian.bmp');
39
40 —     img_combina = wiener2(img_adam);
41 —     subplot(2, 2, 1);imshow(img_combina);title(' combination');
42 —     imwrite(img_combina, ' ResultA.bmp');

```

2 Problem 2



```
1 — img = imread('NoisyBlur.bmp');
2
3
4 — f_blur = fspecial('disk', 3);
5 — wnr1 = deconvwnr(img, f_blur, 0.5);
6 — wnr2 = deconvwnr(img, f_blur, 0.02);
7 — wnr3 = deconvwnr(img, f_blur, 0.001);
8 — subplot(1,3,1);imshow(wnr1);
9 — subplot(1,3,2),imshow(wnr2);
10 — subplot(1,3,3),imshow(wnr3);
11 — imwrite(wnr1, 'ResultB.bmp');
12 — imwrite(wnr2, 'ResultC.bmp');
13 — imwrite(wnr3, 'ResultD.bmp');
```