

---

```
clc;
close all;
clear all;

I1=imread('barbara.gif');
I2=imnoise(I1,'salt & pepper',0.02);
I3=imnoise(I1,'gaussian',0,0.02);

for I=1:3
    subplot(3,1,I);
    imshow(eval(strcat('I',int2str(I)))); 
end

for I=2:3
    figure
    Median_Filter(I1,eval(strcat('I',int2str(I))),3,3,1,1);
    Median_Filter(I1,eval(strcat('I',int2str(I))),5,3,1,2);
    Median_Filter(I1,eval(strcat('I',int2str(I))),7,3,1,3);
    figure;
    Mean_Filter(I1,eval(strcat('I',int2str(I))),3,3,1,1);
    Mean_Filter(I1,eval(strcat('I',int2str(I))),5,3,1,2);
    Mean_Filter(I1,eval(strcat('I',int2str(I))),7,3,1,3);
    figure;
    Gaussian_Filter(I1,eval(strcat('I',int2str(I))),5,0.3,3,1,1);
    Gaussian_Filter(I1,eval(strcat('I',int2str(I))),5,0.6,3,1,2);
    Gaussian_Filter(I1,eval(strcat('I',int2str(I))),5,0.9,3,1,3);
end

I1=imread('cameraman.tif');
I2=imnoise(I1,'salt & pepper',0.02);
I3=imnoise(I1,'gaussian',0,0.02);

for I=1:3
    subplot(3,1,I);
    imshow(eval(strcat('I',int2str(I)))); 
end

for I=2:3
    figure
    Median_Filter(I1,eval(strcat('I',int2str(I))),3,3,1,1);
    Median_Filter(I1,eval(strcat('I',int2str(I))),5,3,1,2);
    Median_Filter(I1,eval(strcat('I',int2str(I))),7,3,1,3);
    figure;
    Mean_Filter(I1,eval(strcat('I',int2str(I))),3,3,1,1);
    Mean_Filter(I1,eval(strcat('I',int2str(I))),5,3,1,2);
    Mean_Filter(I1,eval(strcat('I',int2str(I))),7,3,1,3);
    figure;
    Gaussian_Filter(I1,eval(strcat('I',int2str(I))),5,0.3,3,1,1);
    Gaussian_Filter(I1,eval(strcat('I',int2str(I))),5,0.6,3,1,2);
    Gaussian_Filter(I1,eval(strcat('I',int2str(I))),5,0.9,3,1,3);
end
```

---



Median Filter (3\*3),PSNR=25.17



Median Filter (5\*5),PSNR=23.2277



Median Filter (7\*7),PSNR=23.6208



---

Mean Filter (3\*3),PSNR=24.2113



Mean Filter (5\*5),PSNR=23.0531



Mean Filter (7\*7),PSNR=22.9759



Gaussian Filter (5,0.3),PSNR=22.5618



Gaussian Filter (5,0.6),PSNR=26.2378



Gaussian Filter (5,0.9),PSNR=25.3312



---

Median Filter (3\*3),PSNR=21.8259



Median Filter (5\*5),PSNR=22.2052



Median Filter (7\*7),PSNR=22.6809



Mean Filter (3\*3),PSNR=22.7737



Mean Filter (5\*5),PSNR=22.588



Mean Filter (7\*7),PSNR=22.731





Median Filter (3\*3),PSNR=36.2646



Median Filter (5\*5),PSNR=31.0434



Median Filter (7\*7),PSNR=27.4007



---

Mean Filter (3\*3),PSNR=28.7851



Mean Filter (5\*5),PSNR=26.8149



Mean Filter (7\*7),PSNR=24.6931



Gaussian Filter (5,0.3),PSNR=22.1686



Gaussian Filter (5,0.6),PSNR=27.7737



Gaussian Filter (5,0.9),PSNR=30.0102



---

Median Filter (3\*3),PSNR=24.4678



Median Filter (5\*5),PSNR=26.0736



Median Filter (7\*7),PSNR=25.1798



Mean Filter (3\*3),PSNR=25.4843



Mean Filter (5\*5),PSNR=25.4873



Mean Filter (7\*7),PSNR=24.0512



---

Gaussian Filter (5,0.3),PSNR=17.6589



Gaussian Filter (5,0.6),PSNR=23.2895



Gaussian Filter (5,0.9),PSNR=26.2007



*Published with MATLAB® 7.14*