MCBU

CSE3113/CSE3214 Introduction to Digital Image Processing

Homework 2 Report

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1. Tools

I used Octave 5.1.

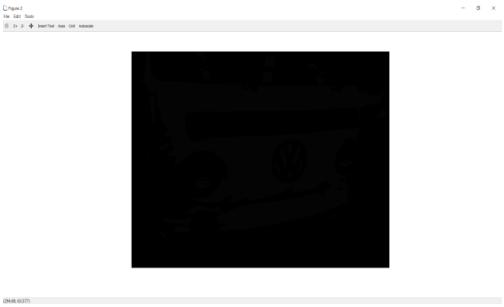
2. Problems

There are salt and paper , periodic noise in orginal image. It is dark. We need to smooth it.

3. Solutions

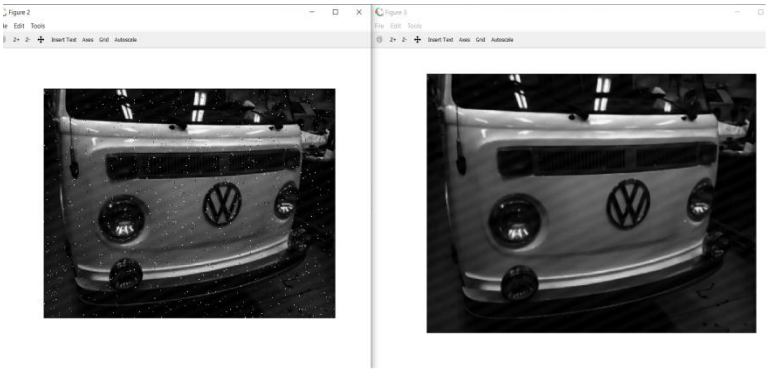
I used power law transformation to decolor image . I tried to apply γ=0.3 , 0.4 , 0.5 .I entered r=1 in every step . I obtained just all black image. I could not get any result.

```
img=imread('C:\Users\umutd\Desktop\IIP-homework\3.tif')

I1=medfilt2(img);

s=1*I1.^0.3

figure,imshow(s)
```



I could not use medfilt2 at first. To use it I downloaded image package octave.pkg load image

I used median filter to remove salt and paper.



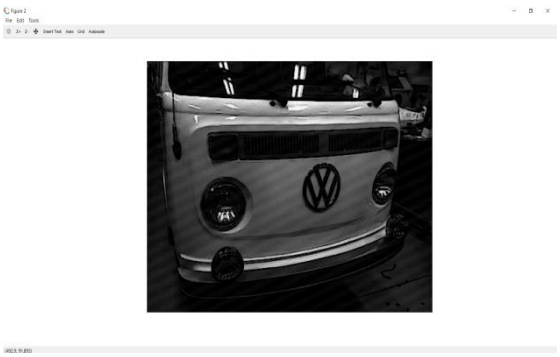
I multiplied image with 2 times to decolor. I2=2*I1

I used histogram equalization to smooth image. I3=histeq(I2)

I used laplacian transform which applied median filter image. I obtain like same image

I could not get useful result. So I removed the following code:

```
lap = [1 1 1; 1 -8 1; 1 1 1];

resp = uint8(filter2(lap,I1, 'same'));

sharpened = imsubtract(I1, resp);

imshow(sharpened);
```



Than I used again laplacian filter following code:

I=F_I3;

f=[1 1 1;1 -8 1;1 1 1] I obtained following image:

I used again laplacian filter again to get better result with following code:

I=F_I3;

f=[-1 -1 -1;-1 8 -1;-1 -1 -1]

Ilap=imfilter(I,f);

Isharp=imsubtract(I,Ilap);

figure,imshow(Isharp); I obtained followind image. It is worse.So I removed it

I tried f=[0 -1 0;-1 4 -1;0 -1 0] laplacian filter same code.I obtained following image:

I tried f=[0 1 0;1 -4 1;0 1 0] laplacian filter same code. I obtained following best result:

I multiplied final laplacian image with 0.85 to convert white regions to grey.

4. Conclusions and Observations

I sloged on finding suitable laplacian filter . Applying notch filter was also little difficult.

5. References

I look that website to learn apply laplacian filtering in matlab:

https://stackoverflow.com/questions/36688103/laplacian-image-filtering-and-sharpening-images-in-matlab