DIP HW4 P10942A05 鄭閔軒

1.

Due to Wiener filter also can restore noise image and motion blur at same time, but inverse filter not.

In this case Wiener filter will consider image SNR to restore image noise properly.

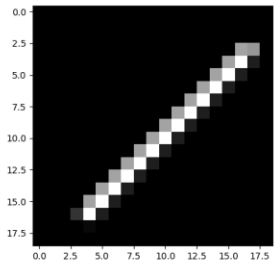
We can consider the funtion of :

$$\hat{F}(u,v) = F(u,v) + \frac{N(u,v)}{1-H(u,v)}$$

If $H(u,v)$ is small enough, Noise will domain the restore image by inverse filiter.

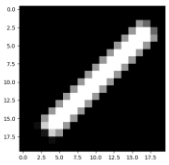
2.

兩題皆利用 Linear motion 改善並搭配相同角度但不同 motion size 以及 K 值我們利用 filter size 挑選 filter 大小 degree 則是相對於中心點的角度，若坐落於該角度則設置為 1 反之為 0，然後再利用 FFT 到相同於輸入圖片的大小。



Photographer denoise we use motion filter for -45 degree motion in size 19 and line width 1 like above figure with K = 0.08 to get the result but not processing very well.

Left is raw image right is deblur image. Have better result than raw image.



Football image we use motion filter for -45 degree motion in size 20 and line width 3 with K = 0.001 to get the result.

Left is raw image. Right is processed image.

In right image we can see football player number but also have some can be improved place.