Wiener Filter

Matlab Code:

a=im2double(imread('cameraman.tif'));

subplot(2,3,1)

imshow(a);

title('original image')

len=21;

theta=11;

psf=fspecial('motion',len,theta)

blur=imfilter(a,psf,'conv','circular')

subplot(2,3,2)

imshow(blur);

title('blurring image')

wnr1=deconvwnr(blur,psf,0)

subplot(2,3,3)

imshow(wnr1);

title('restored image')

noise\_mean=0;

noise\_variance=0.0001;

blur\_noisy=imnoise(blur,'gaussian',noise\_mean,noise\_variance);

subplot(2,3,4)

imshow(blur\_noisy);

title('blurrrrrrrrrre noise')

wnr2=deconvwnr(blur\_noisy,psf,0)

subplot(2,3,5)

imshow(wnr2);

title('image noise-blur')

signal\_variance=var(a(:));

wnr3=deconvwnr(blur\_noisy,psf,(noise\_variance/signal\_variance))

subplot(2,3,6)

imshow(wnr3);

title('restored image')