

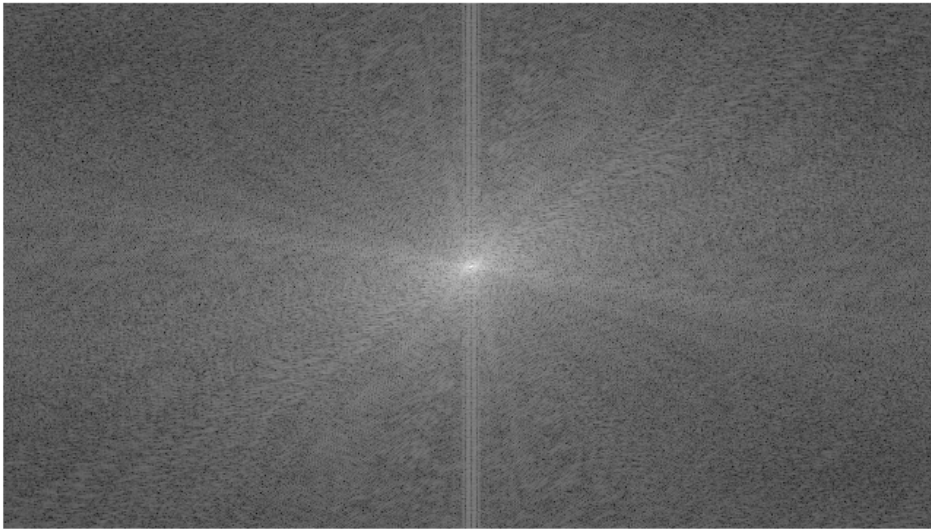
```
F = rgb2gray(imread('Kaguya_Sama.png'));  
imshow(F)
```



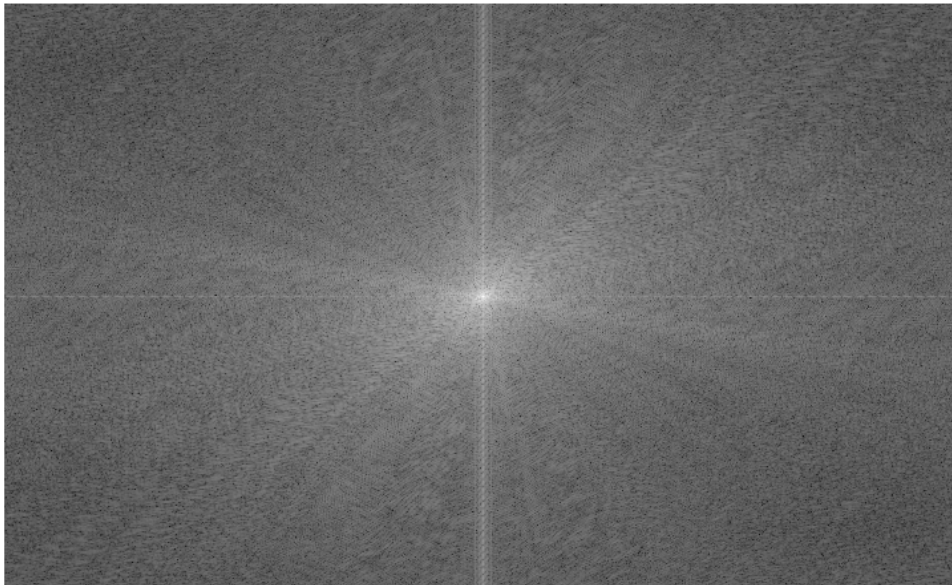
```
d = 40;  
H = zeros(2*d+1, 2*d+1);  
H(d+1, 1:2*d+1) = 1/(2*d) * ones(1, 2*d+1);  
F_blur = uint8(conv2(F, H));  
imshow(F_blur)
```



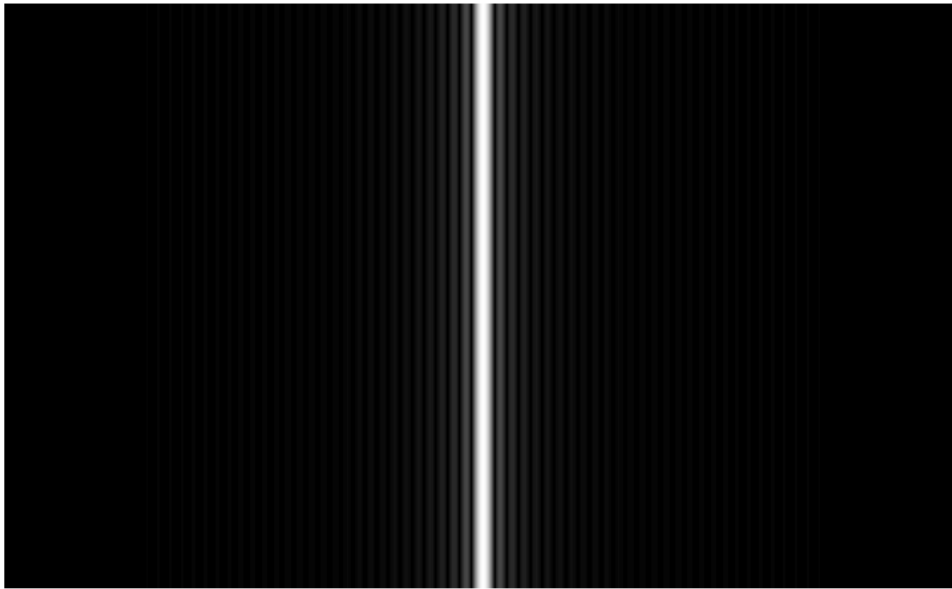
```
F_fft = fft2(F);  
imshow(log(abs(fftshift(F_fft))+1), [])
```



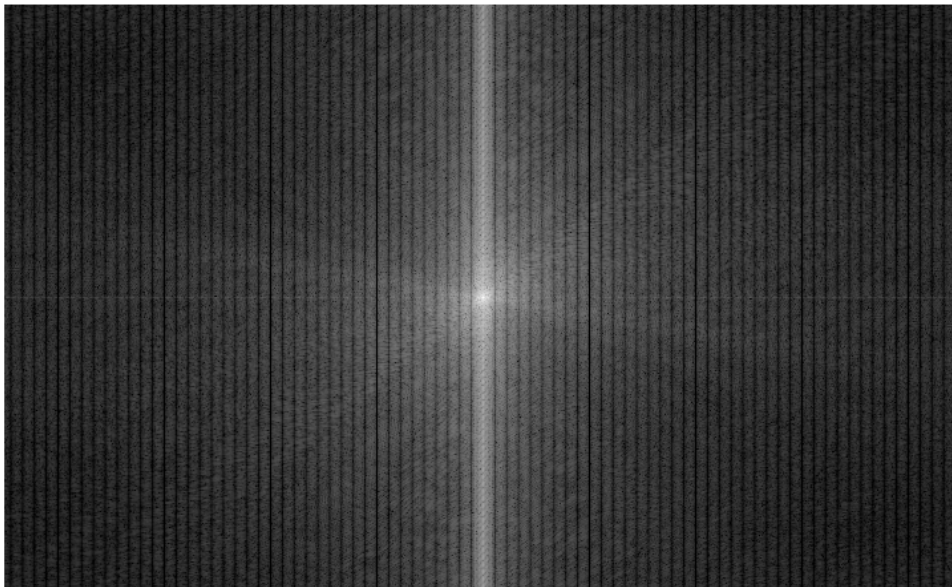
```
[m,n] = size(F);  
FE = zeros(m+2*d, n+2*d);  
FE(1:m, 1:n) = F; FE_fft = fft2(FE);  
imshow(log(abs(fftshift(FE_fft))+1), [])
```



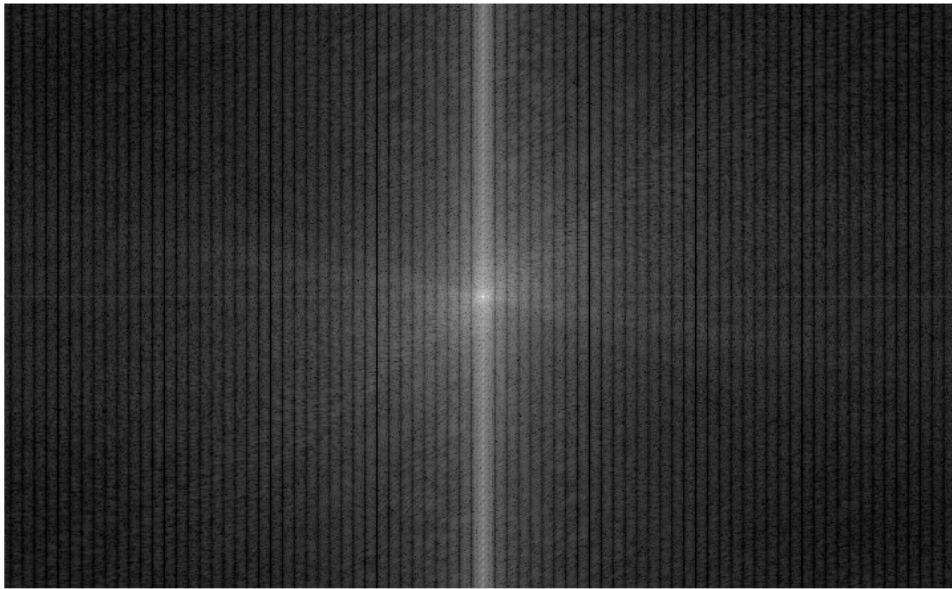
```
HE = zeros(m+2*d, n+2*d);  
HE(1:2*d+1, 1:2*d+1) = H;  
HE_fft = fft2(HE);  
imshow(log(abs(fftshift(HE_fft))+1), [])
```



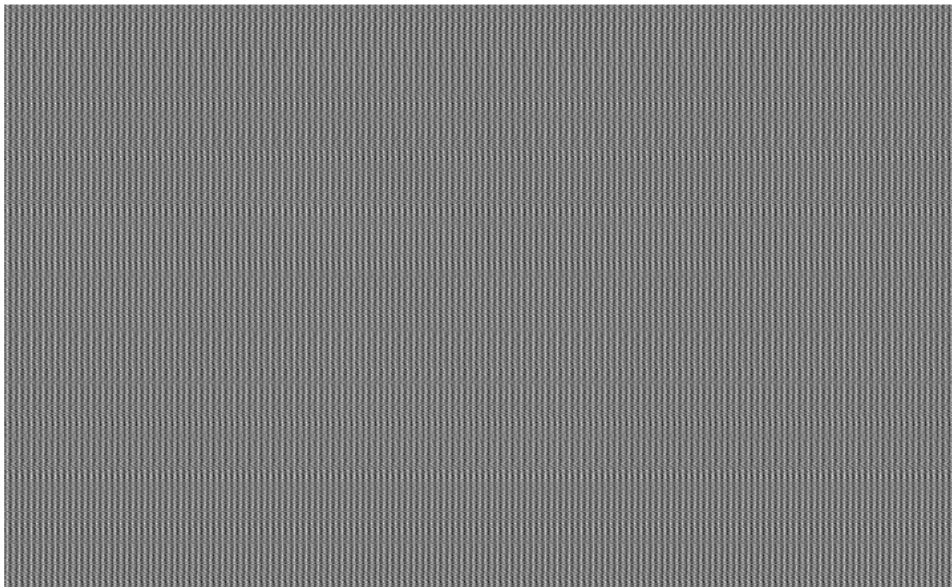
```
G = ifft2(FE_fft.*HE_fft);  
G_fft = fft2(G);  
imshow(log(abs(fftshift(G_fft))+1), [])
```



```
G_n = ifft2(FE_fft.*HE_fft) + n;  
G_n_fft = fft2(G_n);  
imshow(log(abs(fftshift(G_n_fft))+1), [])
```



```
k = 0.00;  
F_restore = ((HE_fft.^2)./(HE_fft.^2+k)) .* G_n_fft ./ HE_fft;  
F_hat = ifft2(F_restore);imshow(F_hat, [])
```



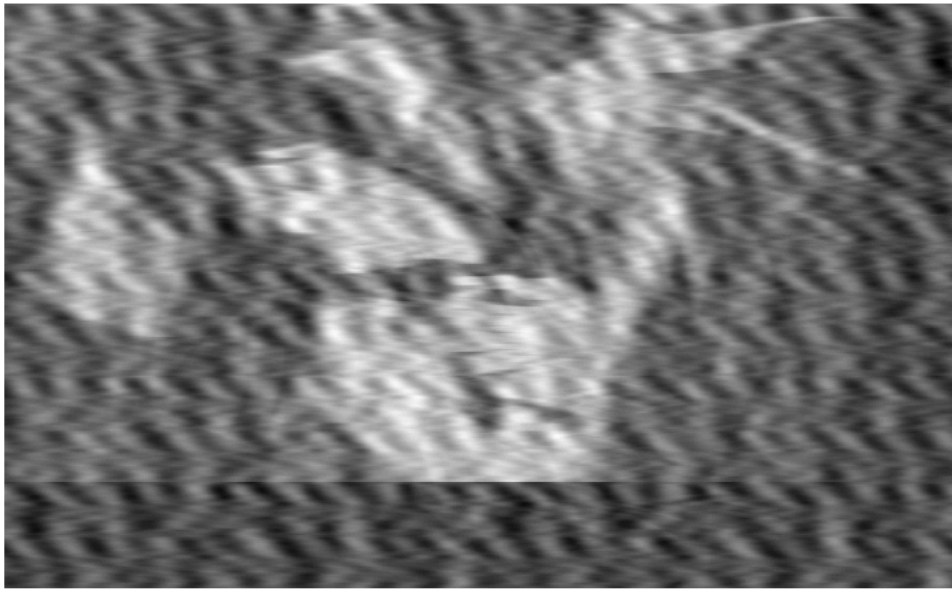
```
k = 0.0005;  
F_restore = ((HE_fft.^2)./(HE_fft.^2+k)) .* G_n_fft ./ HE_fft;  
F_hat = ifft2(F_restore);  
imshow(F_hat, [])
```



```
k = 0.001;
F_restore = ((HE_fft.^2)./(HE_fft.^2+k)) .* G_n_fft ./ HE_fft;
F_hat = ifft2(F_restore);imshow(F_hat, [])
```



```
k = 0.01;
F_restore = ((HE_fft.^2)./(HE_fft.^2+k)) .* G_n_fft ./ HE_fft;
F_hat = ifft2(F_restore);
imshow(F_hat, [])
```



```
k = 0.1;  
F_restore = ((HE_fft.^2)./(HE_fft.^2+k)) .* G_n_fft ./ HE_fft;  
F_hat = ifft2(F_restore);  
imshow(F_hat, [])
```

