

## Blind deconvolution

Cargamos la imagen de lena

```
lena = imread('lena_gray.tif');  
imshow(lena)  
title('Original Image')
```

Original Image



```
lena = im2double(lena);
```

Generamos una imagen con un blur gaussiano y ruido

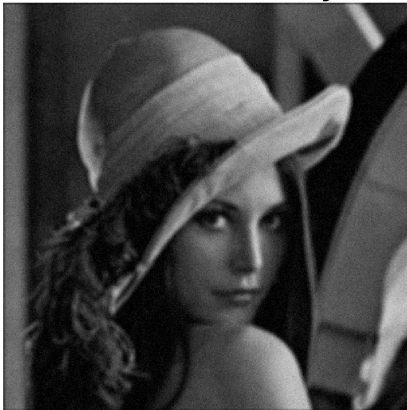
```
PSF = fspecial('gaussian', 7, 10);  
V = .001;  
BlurredNoisy = imnoise(imfilter(lena, PSF), 'gaussian', 0, V);
```

```
WT = zeros(size(lena));  
WT(5:end-4,5:end-4) = 1;  
INITPSF = ones(size(PSF));
```

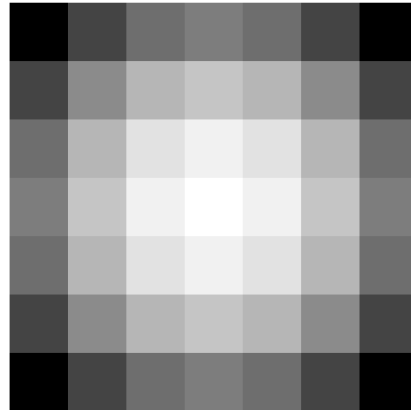
## Realizamos Blind Deconvolution

```
[Recovered P] = deconvblind(BlurredNoisy, INITPSF, 20, 10*sqrt(V), WT);  
  
subplot(221);imshow(BlurredNoisy);  
title('Blurred and Noisy');  
subplot(222);imshow(PSF,[]);  
title('True PSF');  
subplot(223);imshow(Recovered);  
title('Deblurred Image');  
subplot(224);imshow(P,[]);  
title('Recovered PSF');
```

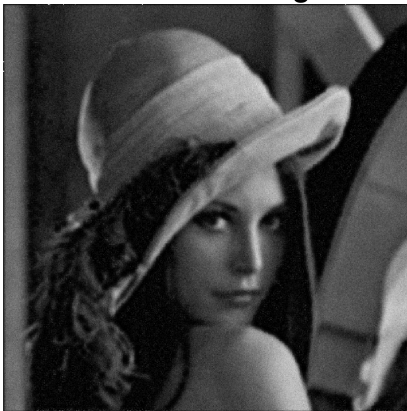
**Blurred and Noisy**



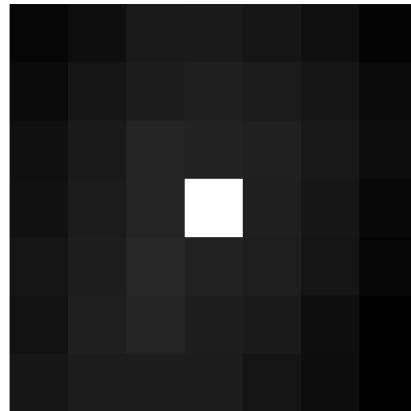
**True PSF**



**Deblurred Image**



**Recovered PSF**



## Diferencia entre degradada y recuperada

```
figure  
  
imshow(BlurredNoisy)  
title('Blurred and Noisy')
```

**Blurred and Noisy**



```
imshow(Recovered)  
title('Deblurred Image')
```

Deblurred Image



Calculamos el MSE asociado a la imagen con blur y ruido y la imagen deblurreada

```
MSE_noisy_blurred = mse(BlurredNoisy, lena)
```

```
MSE_noisy_blurred =  
0.0026
```

```
MSE_deblurred = mse(Recovered, lena)
```

```
MSE_deblurred =  
2.7219e+05
```