Entrega 4

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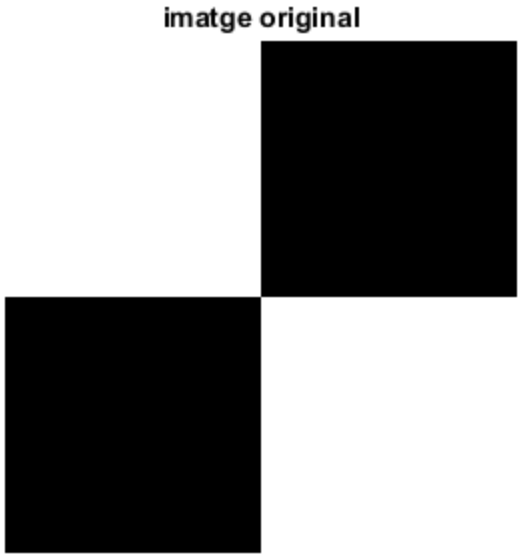
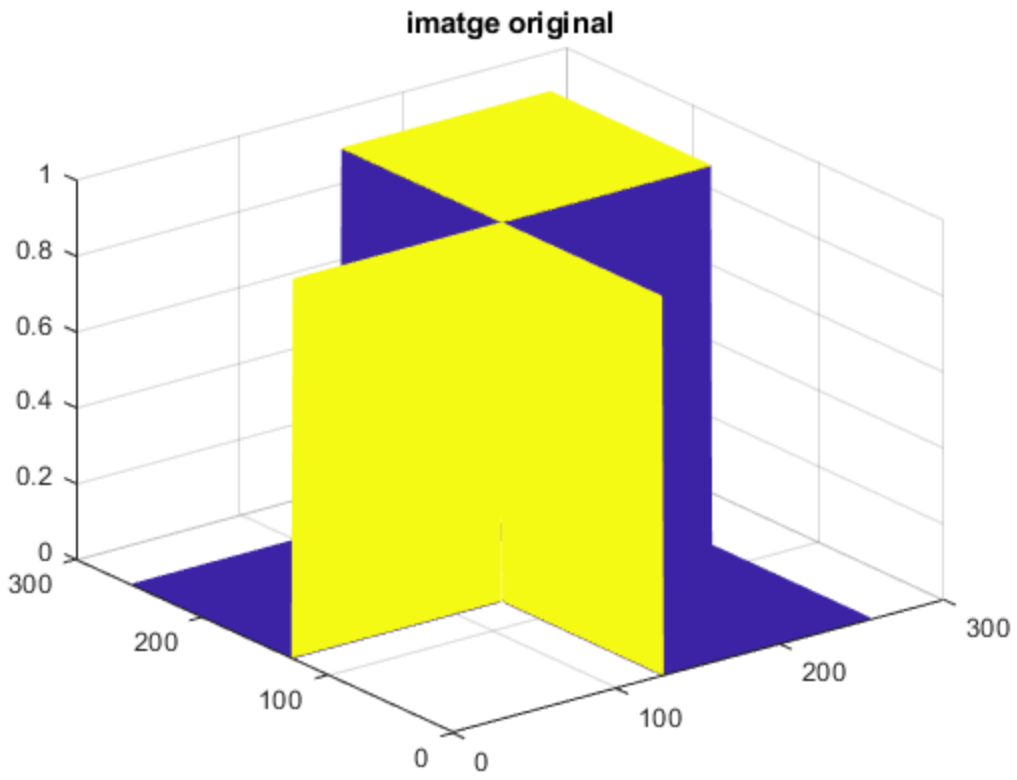
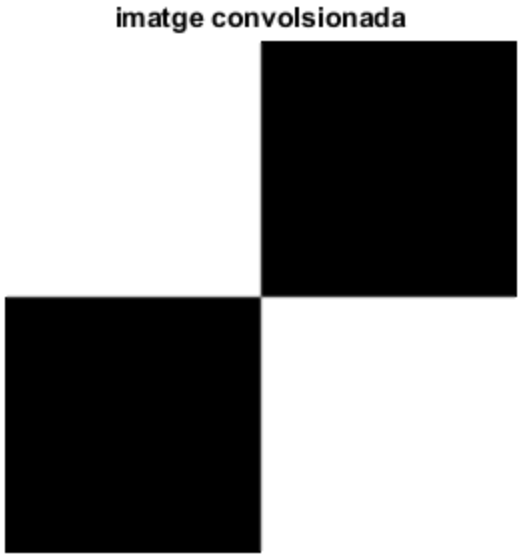
```
clear all
close all
im=zeros(256);
im(1:128, 1:128)=1;
im(129:256,129:256)=1;
imshow(im),title('imatge original')
figure,mesh(im),title('imatge original')
```

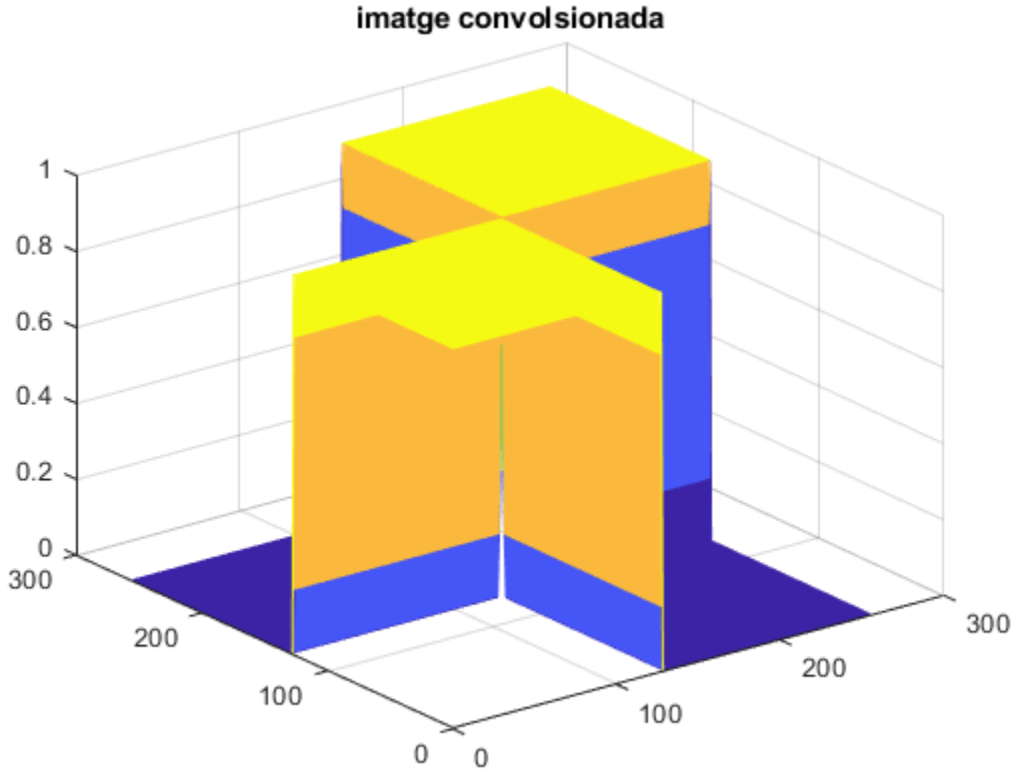




Imatge processat amb ponderació dels pesos sense processar els píxels que estan a la vorera

```
h = double(1)./double(6)* [0,1,0;1,2,1;0,1,0];
improcessat=zeros(256);
for i = 1:256
    for j = 1:256
        if (i == 1 | i == 256 | j == 1 | j == 256)
            improcessat(i,j)=im(i,j);
        else
            var = 0;
            for r = 1:3
               for c = 1:3
                   var = var + im(i+r-2,j+c-2)*h(r,c);
                end
            end
            improcessat(i,j) = var;
        end
    end
end
imshow(improcessat),title('imatge convolsionada')
figure,mesh(improcessat),title('imatge convolsionada')
```

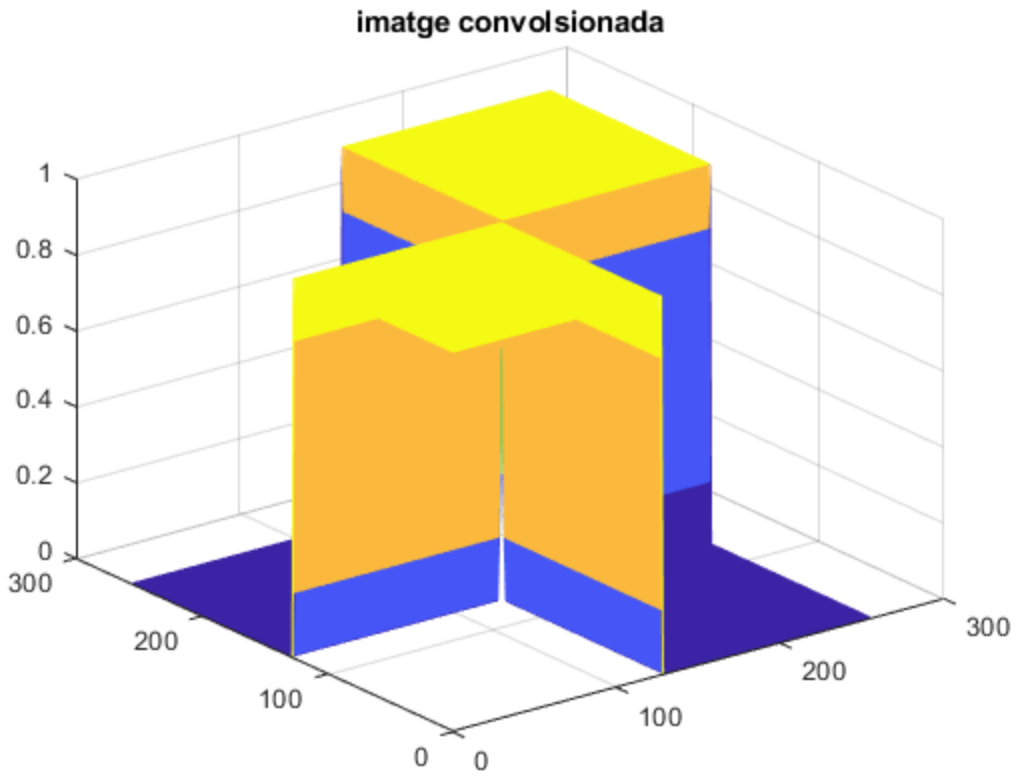


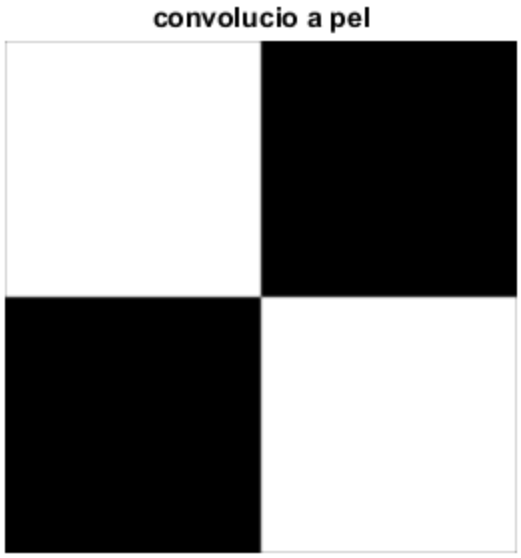


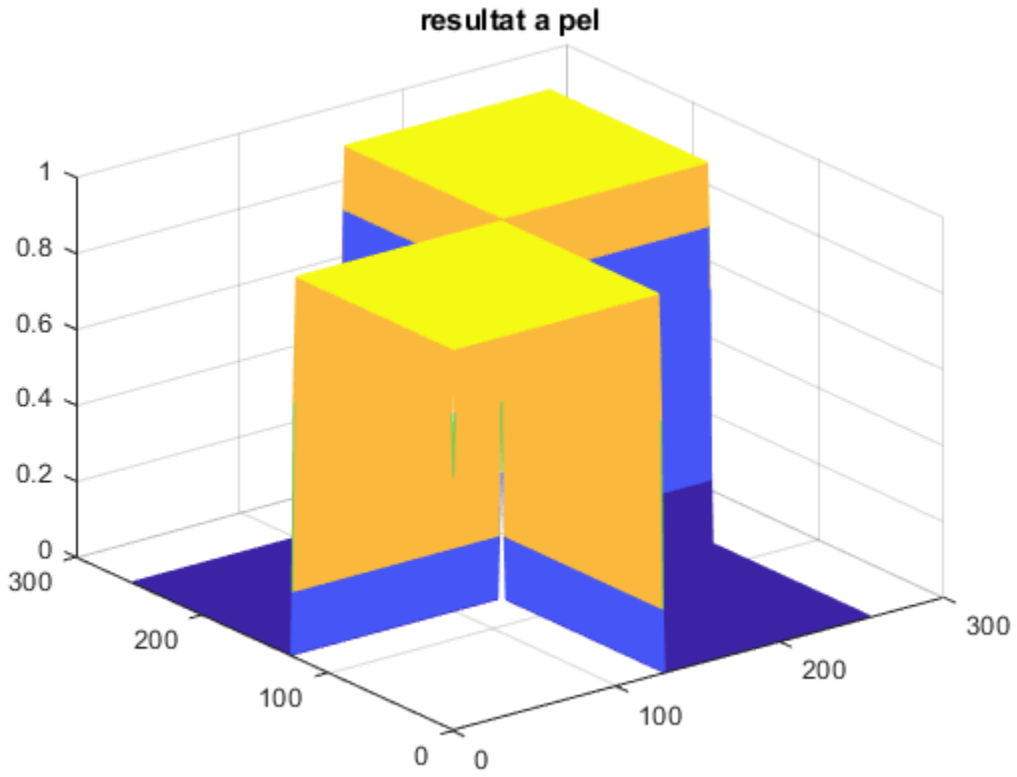
L'altra opció

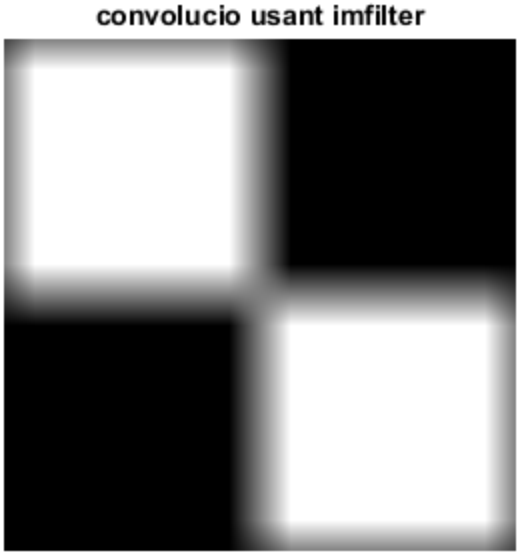
```
res=2*im;
res(:,2:end)=res(:,2:end)+im(:,1:end-1);
```

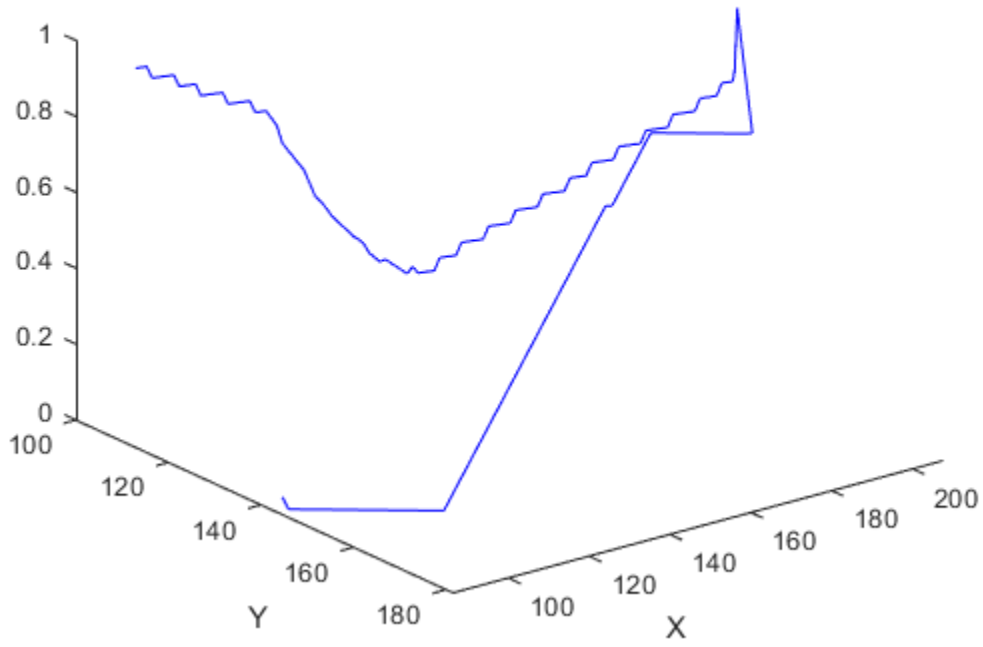
```
res(:,1:end-1)=res(:,1:end-1)+im(:,2:end);
res(2:end,:)=res(2:end,:)+im(1:end-1,:);
res(1:end-1,:)=res(1:end-1,:)+im(2:end,:);
res=res/6;
figure,imshow(res),title('convolucio a pel')
improfile
figure,mesh(res),title('resultat a pel')
h=ones(31);
h=h/sum(h(:));
res2=imfilter(im,h,'conv');
figure,imshow(res2),title('convolucio usant imfilter')
improfile
res3=imfilter(im,h,'conv','replicate');
figure,imshow(res3),title('convolucio pad replicat')
```

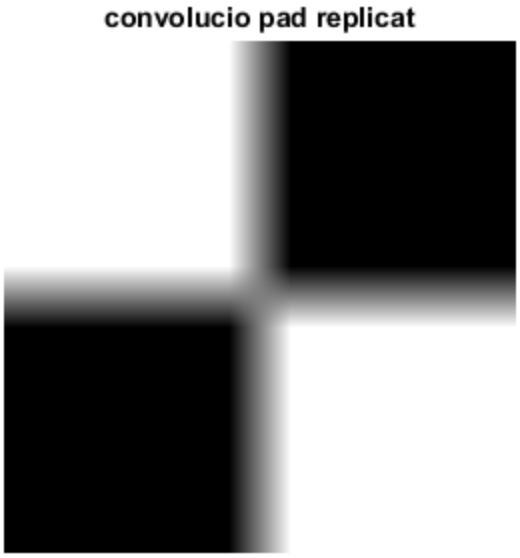



convolucio a pel


resultat a pel
1
0.8
0.6
0.4
0.2
0
300
200
100
0
0
100
200
300


convolucio usant imfilter

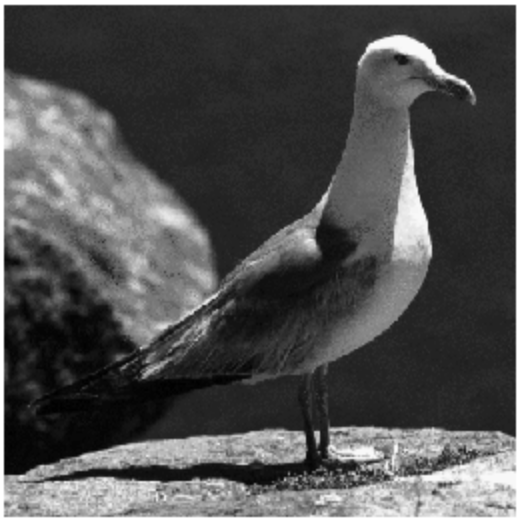

1
0.8
0.6
0.4
0.2
0
100
120
140
160
180
Y
100
120
140
160
180
200
X



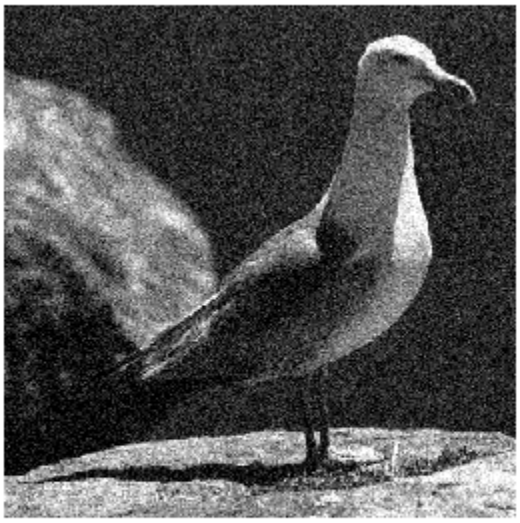

```
clear all
close all
cd('I:\vc\sample images')

h = fspecial('gaussian',7,2);
im=imread('gull.tif');
imshow(im),title('imatge original')
img=imnoise(im,'gaussian');
figure,imshow(img),title('soroll gaussia')
res=imfilter(img,h,'conv');
figure,imshow(res),title('filtrat gaussia')
imsp=imnoise(im,'salt & pepper',0.2);
figure,imshow(imsp),title('soroll impulsional')
res2=imfilter(imsp,h,'conv');
figure,imshow(res2),title('filtrat gaussia')
res3=medfilt2(imsp,[5,5]);
figure,imshow(res3),title('filtrat mediana')
```

imatge original



soroll gaussia



filtrat gaussia

soroll impulsional

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