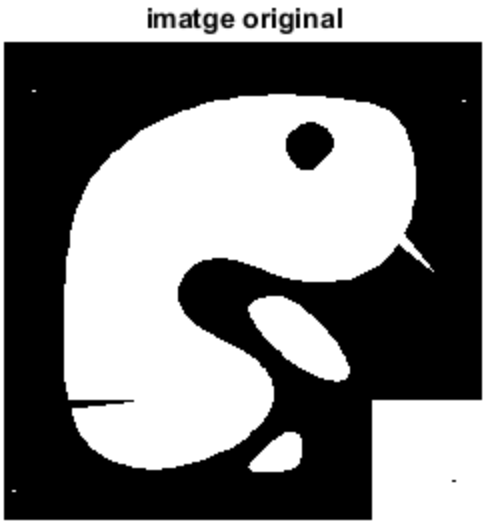
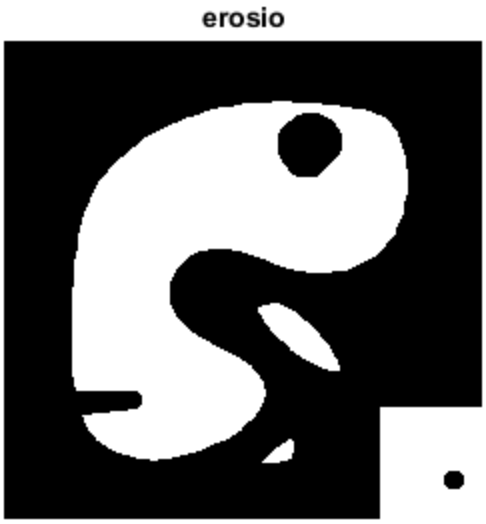
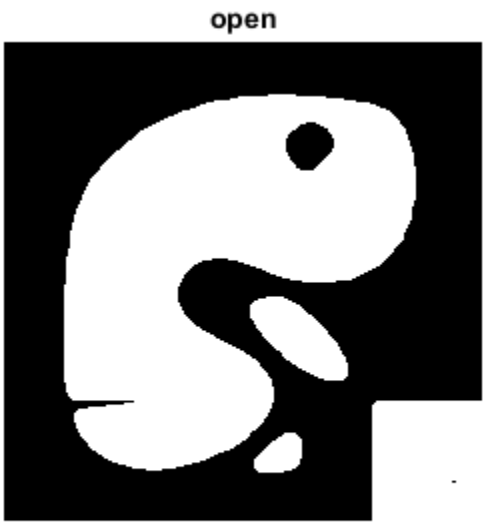
Entrega 7 Natalia Dai, Xenia Calisalvo Veciana,You Wu close all clear all cd('I:\vc\sample images')

Open passant per erosió (elimina petites estructures blanques)

```
im = imread('blob.tif');
imshow(im), title('imatge original')

ee = strel('disk', 5);
ero = imerode(im, ee);
figure, imshow(ero), title('erosio')
op = imdilate(ero, ee);
figure, imshow(op), title('open')
```

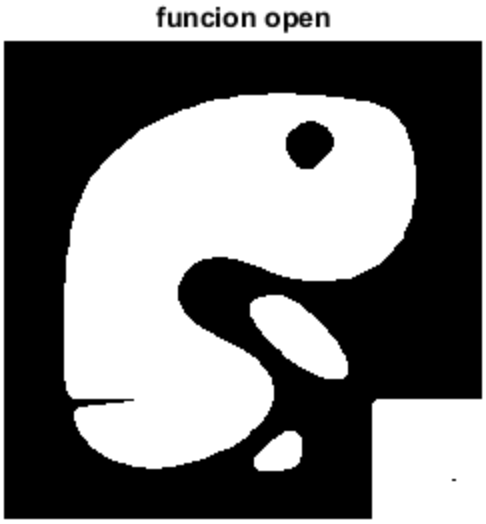


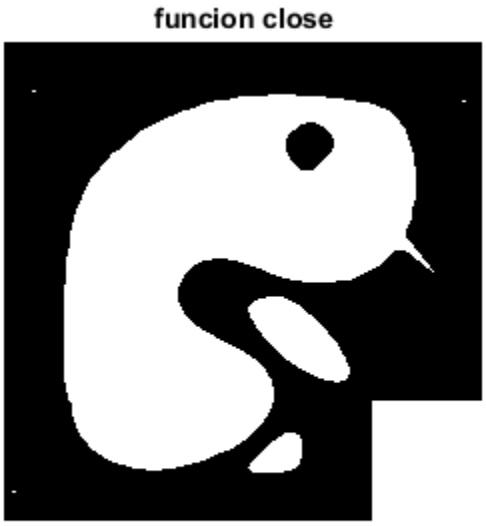




Alternativa de open (eliminar sorolls salt) close (i pepper)

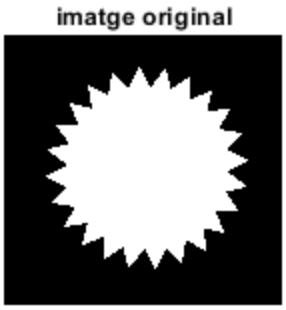
```
op = imopen(im, ee);
figure, imshow(op), title('funcion open')
cl = imclose(im, ee); %elimina petites estructures negres
figure, imshow(cl), title('funcion close')
```





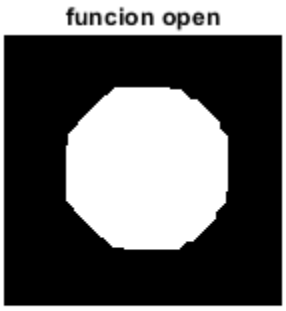
Comprovació dels dents de la imatge (control de qualitat)

```
im = imread('gear.tif');
imshow(im), title('imatge original')
```



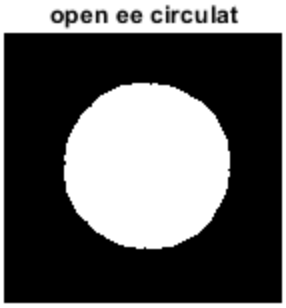
Segmentació

```
ee = strel('disk', 20);
op = imopen(im, ee);
figure, imshow(op), title('funcion open')
```



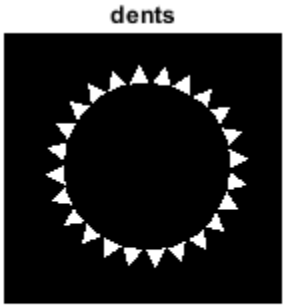
Disk més rodó

```
ee = strel('disk', 20, 0);
op = imopen(im, ee);
figure, imshow(op), title('open ee circulat')
```



Dents

```
res = imsubtract(im, op);
figure, imshow(res), title('dents')
```



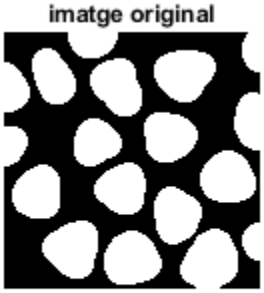
Etiqueta -> una imatge que on cada obj és un número

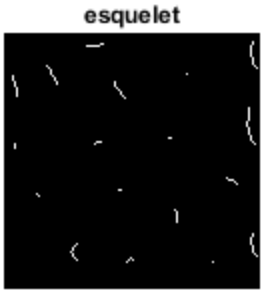
```
[eti n] = bwlabel(res, 8);
rgb = label2rgb(eti);
figure, imshow(eti), title('imatge etiquetada')
impixelinfo
figure, imshow(uint8(eti)), title('imatge etiquetada')
```

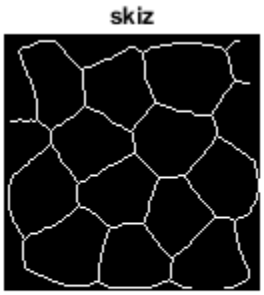
Pixel info: (X, Y) Pixel Value

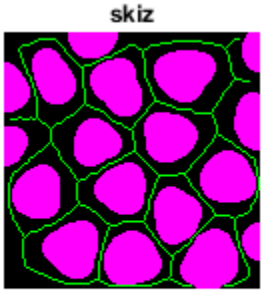
Skiz -> Vores de les zones d influència

```
im = imread('blob3.tif');
imshow(im), title('imatge original')
sk = bwskel(im);
figure, imshow(sk), title('esquelet')
skiz = bwskel(~im);
figure, imshow(skiz), title('skiz')
figure, imshow(imfuse(skiz, im)), title('skiz')
```





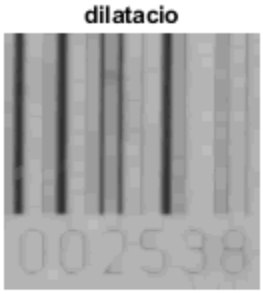


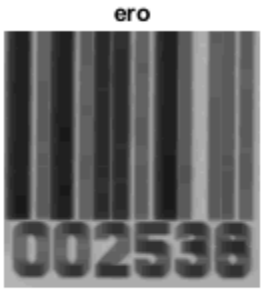


Un altre exemple

```
im = imread('n2538.tif');
imshow(im), title('imatge original')
ee=strel('disk',3);
dil=imdilate(im,ee);
ero=imerode(im,ee);
op=imopen(im,ee);
cl=imclose(im,ee);
figure,imshow(dil),title('dilatacio')
```

```
figure,imshow(ero),title('ero')
figure,imshow(op),title('open')
figure,imshow(cl),title('close')
```

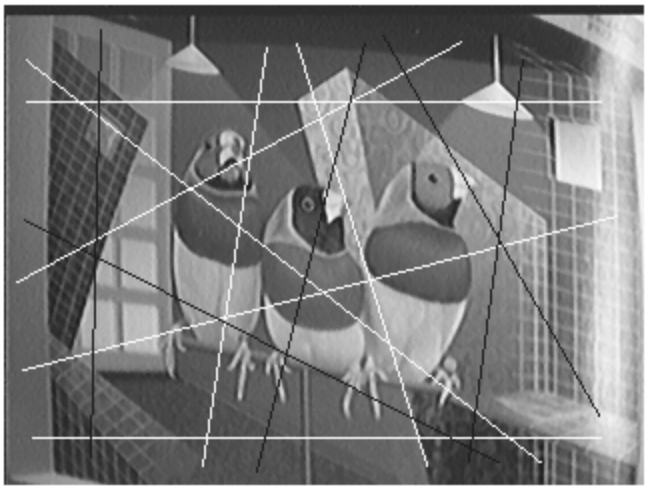




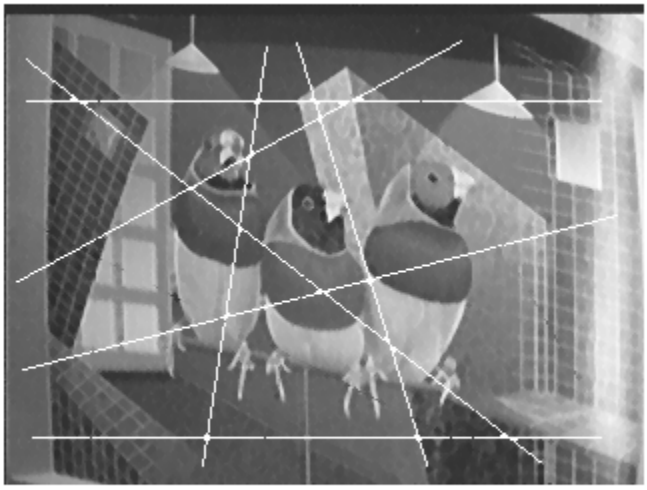
Eliminació de linies blanques i negres de la imatge

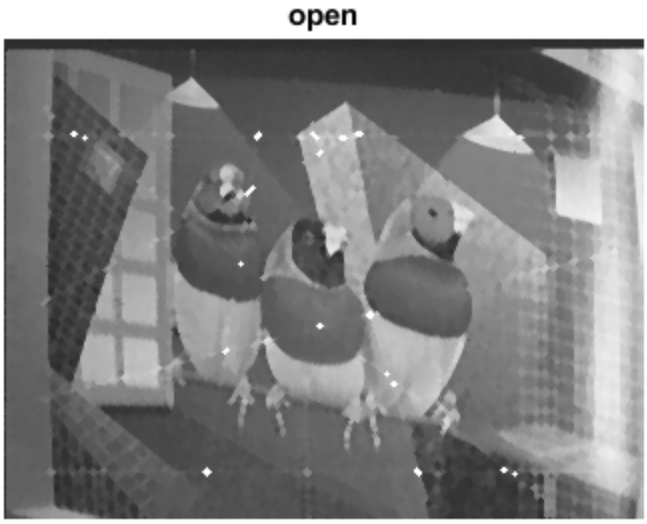
```
close all
im = imread('Birds.tif');
imshow(im), title('imatge original')
ee=strel('disk',1);
cl=imclose(im,ee);
figure,imshow(cl),title('close')
op=imopen(cl,ee);
figure,imshow(op),title('open')
% Interseccions de les línies són més d'un píxel de gruix
```

imatge original



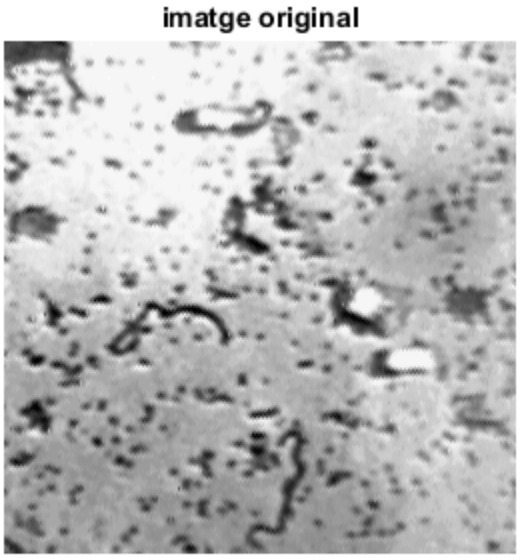
close

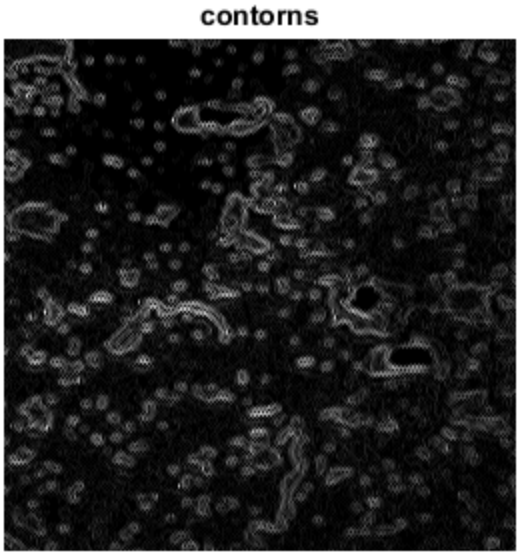




Extracció de contorns

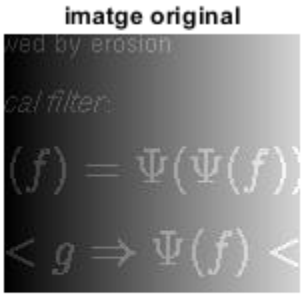
```
close all
im = imread('danaus.tif');
imshow(im), title('imatge original')
dil=imdilate(im,ee);
c=imsubtract(dil,im); % imatge del contorn
figure,imshow(c,[]),title('contorns')
```

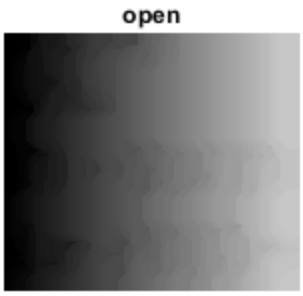




Recuperar la imatge original amb open top-hat

```
close all
im = imread('nshadow.tif');
imshow(im), title('imatge original')
ee=strel('disk',10);
op=imopen(im,ee);
figure,imshow(op),title('open')
th=imsubtract(im, op); % imatge del contorn
figure,imshow(th),title('top hat')
```



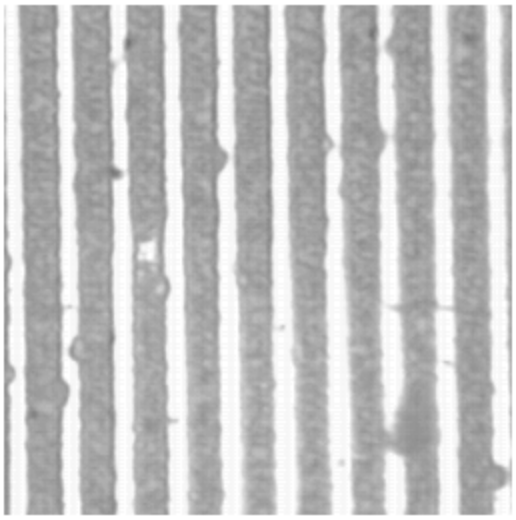


Un altre exemple

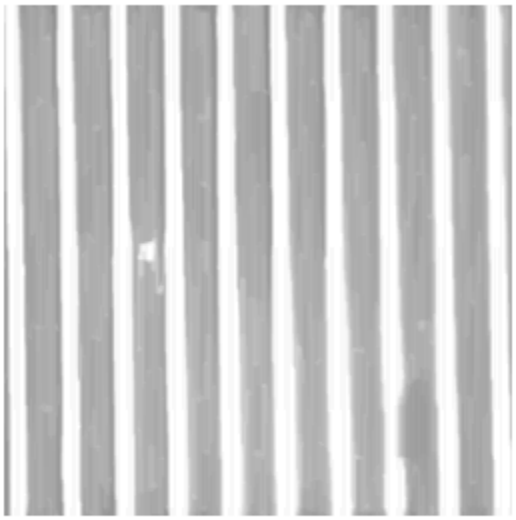
```
im = imread('r4x2_256.tif');
imshow(im), title('imatge original')
ee=strel('line',25,90) % element estructurant de tipus linia de 25 píxels de
 90 graus
cl = imclose(im, ee);
figure,imshow(cl),title('close')
bh = imsubtract(cl, im); % els defectes
figure,imshow(bh),title('close')
figure,imshow(imfuse(bh, im)),title('defectes')
```

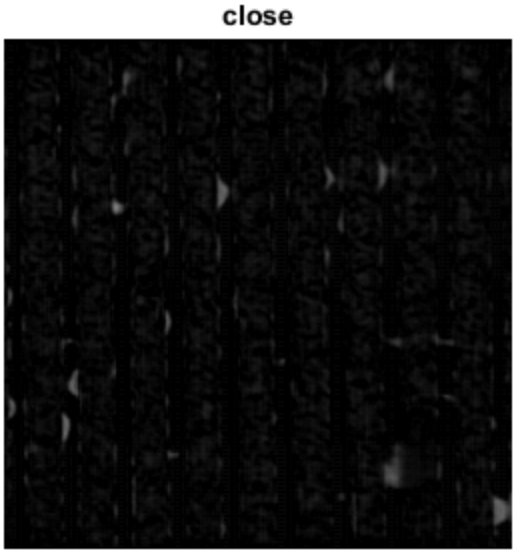
```
ee =

strel is a line shaped structuring element with properties:

      Neighborhood: [25×1 logical]
    Dimensionality: 2
```

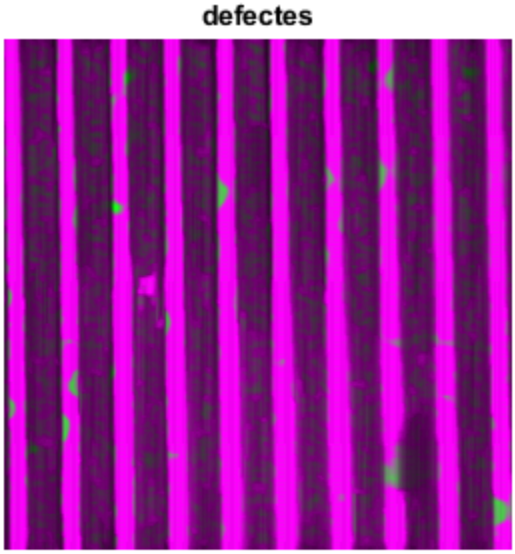
imatge original



close







Published with MATLAB® R2022a