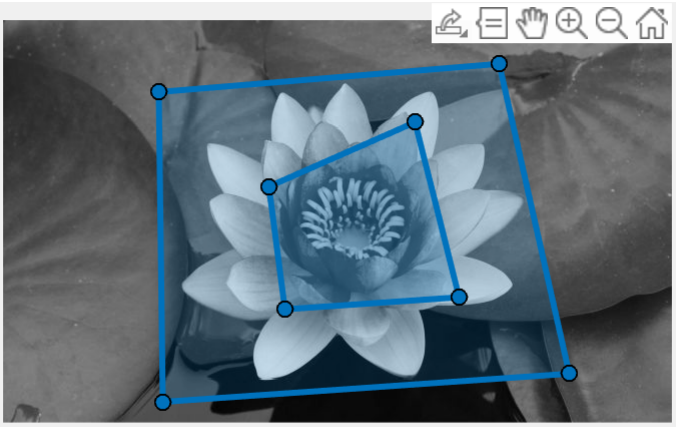
E7-bis: Segmentació

Segmentació assistida

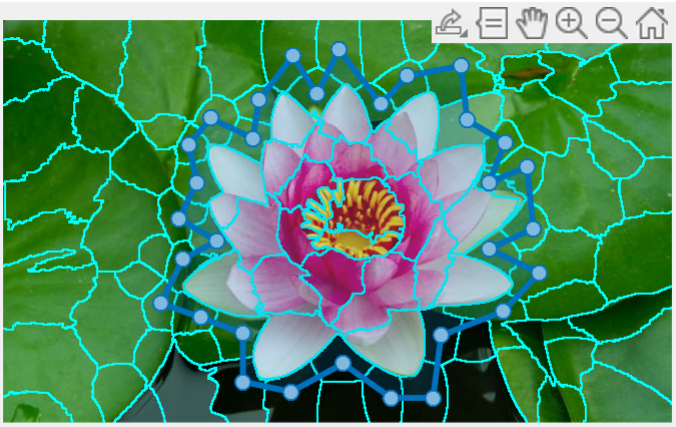
```
I = rgb2gray(imread("nenufar.jpg"));
imshow(I);
[f, c] = size(I);
roiPoints = drawpolygon;
BK = not(poly2mask(roiPoints.Position(:,1), roiPoints.Position(:,2), f, c));
roiPoints = drawpolygon;
```



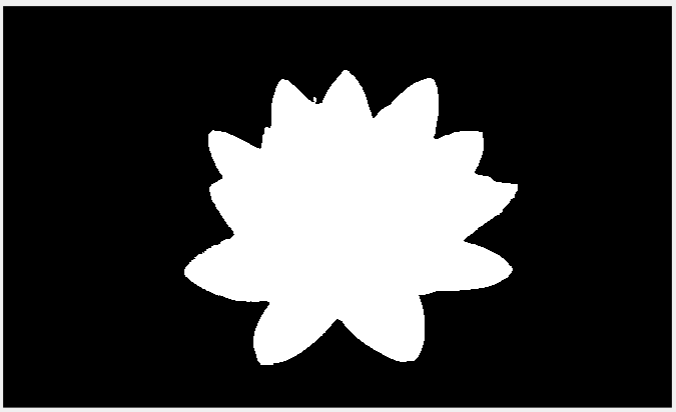
```
FG = poly2mask(roiPoints.Position(:,1), roiPoints.Position(:,2), f, c);

MASK = BK|FG;

% imatge gradient
Grad = uint8(imgradient(I));
G = imimposemin(Grad,MASK);

WS = watershed(G);
imshow(imoverlay(I,(WS == 0)),[]);
```

Segmentació assistida utilitzant graph min cut

```
I = imread("nenufar.jpg");
[SP, N] = superpixels(I, 100);
BW = boundarymask(SP);
imshow(imoverlay(I,BW,'cyan'));

[f, c] = size(SP);
roiPoints = drawpolygon;
```



```
roi = poly2mask(roiPoints.Position(:,1), roiPoints.Position(:,2), f, c);
BW = grabcut(I,SP,roi); % SP -> etiquetes, roi -> regió d'interès
imshow(BW)
```



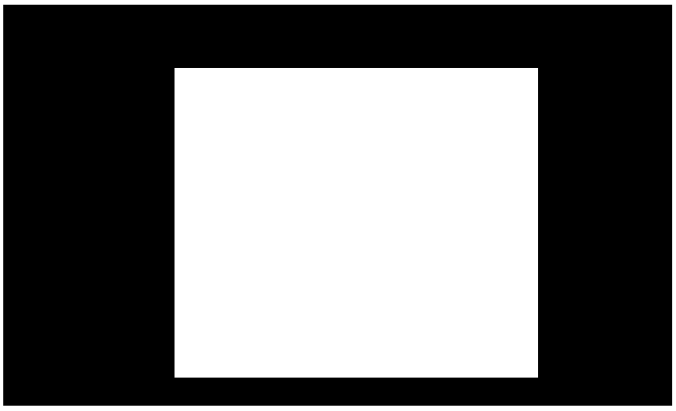
Segmentació

```
I = imread("nenufar.jpg");
imshow(I);
rect = getrect;
```

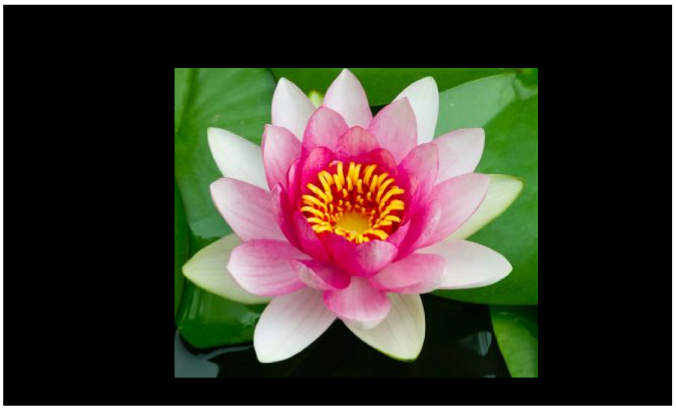
```
[f, c, p] = size(I);
```

```
I = imread("nenufar.jpg");
[f,c,p] = size(I);
R = I(:,:,1);
G = I(:,:,2);
B = I(:,:,3);
O = [R(:), G(:), B(:)];
[C,Centroide] = kmeans(double(O), 20);
C = reshape(C, [f, c]);
RGB = label2rgb(C);


RGB2 = I;

for i = 1:f
    for j = 1:c
        rgb = Centroide(C(i,j),:);
        RGB2(i,j,1) = uint8(rgb(1));
        RGB2(i,j,2) = uint8(rgb(2));
        RGB2(i,j,3) = uint8(rgb(3));
    end
end
```

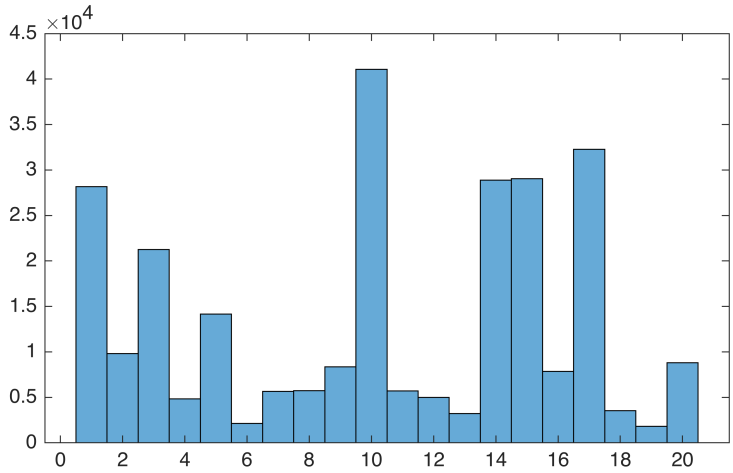
```
MASK = false([f, c]);
MASK(rect(2):rect(2)+rect(4), rect(1):rect(1)+rect(3)) = 1;

imshow(MASK)
```



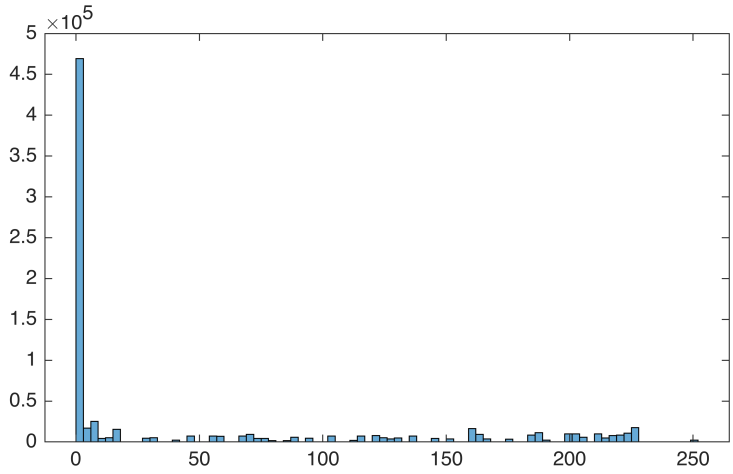
```
imshow(uint8(MASK).*I)
```



```
histogram(C);
```




```
histogram(uint8(MASK).*RGB2)
```




```
histogram(uint8(not(MASK)).*RGB2)
```