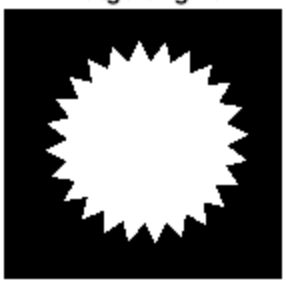
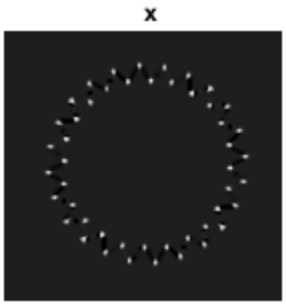
```
clear all
close all
cd('I:\vc\sample images')
% Lectura de la imatge principal
im = imread('gear.tif');
figure,imshow(im),title('imatge original')

%
h=[1,2,1;0,0,0;-1,-2,-1];
h=h/4;
% Derivada x i derivada y.
Iy=imfilter(double(im),h,'conv');
figure,imshow(Iy, []),title('derivada y')
Ix=imfilter(double(im), h','conv');
figure,imshow(Ix, []),title('derivada x')

Ix2 = Ix.^2;
Iy2 = Iy.^2;
Ixy = Ix.*Iy;

h=[1,1,1;1,1,1;1,1,1];
Ix2 = filter2(h, Ix2);
Iy2 = filter2(h,Iy2);
Ixy = filter2(h,Ixy);
[height width] = size(im);
R = zeros(height,width);
k = 0.04;
for i = 1:height
    for j = 1:width
        R(i,j) = (Ix2(i,j).*Iy2(i,j)-(Ixy(i,j)^2))-k*(Ix2(i,j)+Iy2(i,j))^2;
    end
end
figure,imshow(R,[]),title('  x')

regionalMaxima = imregionalmax(R);
resultat = regionalMaxima ==1;

figure,imshow(resultat),title('Resultat final')
```

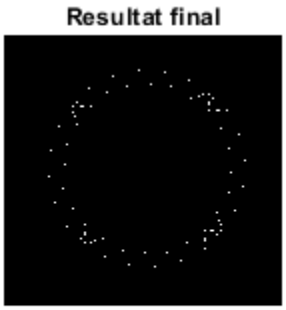
imatge original



derivada y

derivada x





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