COMP 4687

Week 9 Practice

1) Canny

m0901_Canny.m

```
clc
clear all
imgGray = imread('image1.bmp');
%imgGray = imread('image3.bmp');
%imgGray = imread('Cyprus2.png');
imshow(imgGray);

image2 = edge(imgGray,"canny");
figure
imshow(image2);

image3 = edge(imgGray,"canny",[ ],1);
figure
imshow(image3);

image3 = edge(imgGray,"canny",[ ],4);
figure
imshow(image3);
```

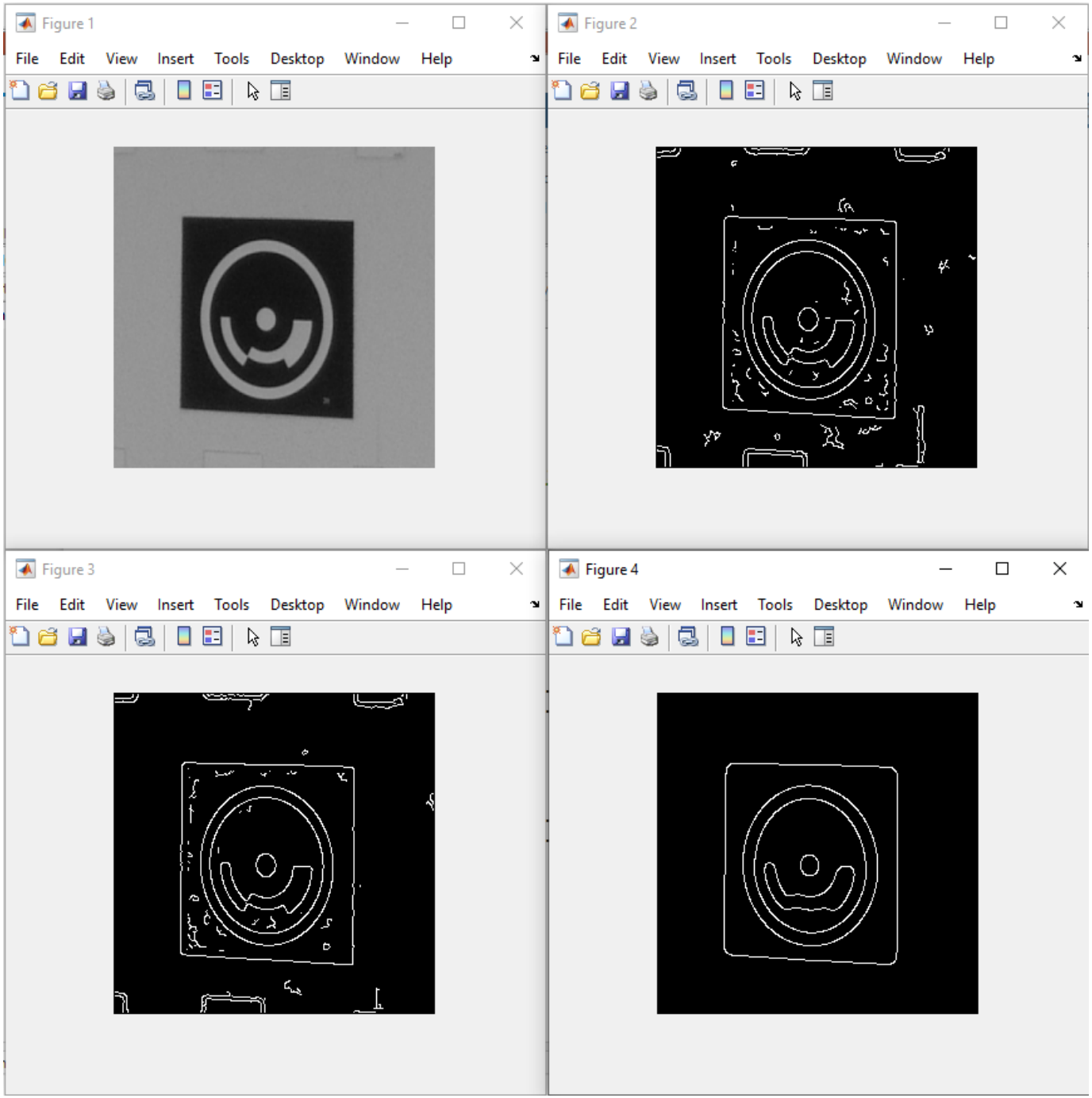
Figure 1
File Edit View Insert Tools Desktop Window Help
Figure 2
File Edit View Insert Tools Desktop Window Help
Figure 3
File Edit View Insert Tools Desktop Window Help
Figure 4
File Edit View Insert Tools Desktop Window Help

2) All

m0902_All.m

```
clc
clear all
imgGray = imread('image1.bmp');
%imgGray = imread('image3.bmp');
%imgGray = imread('Cyprus2.png');
imshow(imgGray);

image2 = edge(imgGray,"prewitt");
figure
imshow(image2);
title('prewitt')

image3 = edge(imgGray,"sobel");
figure
imshow(image3);
title('sobel')

image4 = edge(imgGray,"roberts");
figure
imshow(image4);
title('roberts')

%image5 = edge(imgGray,"canny");
image5 = edge(imgGray,"canny",[ ],4);
figure
imshow(image5);
title('canny')
```

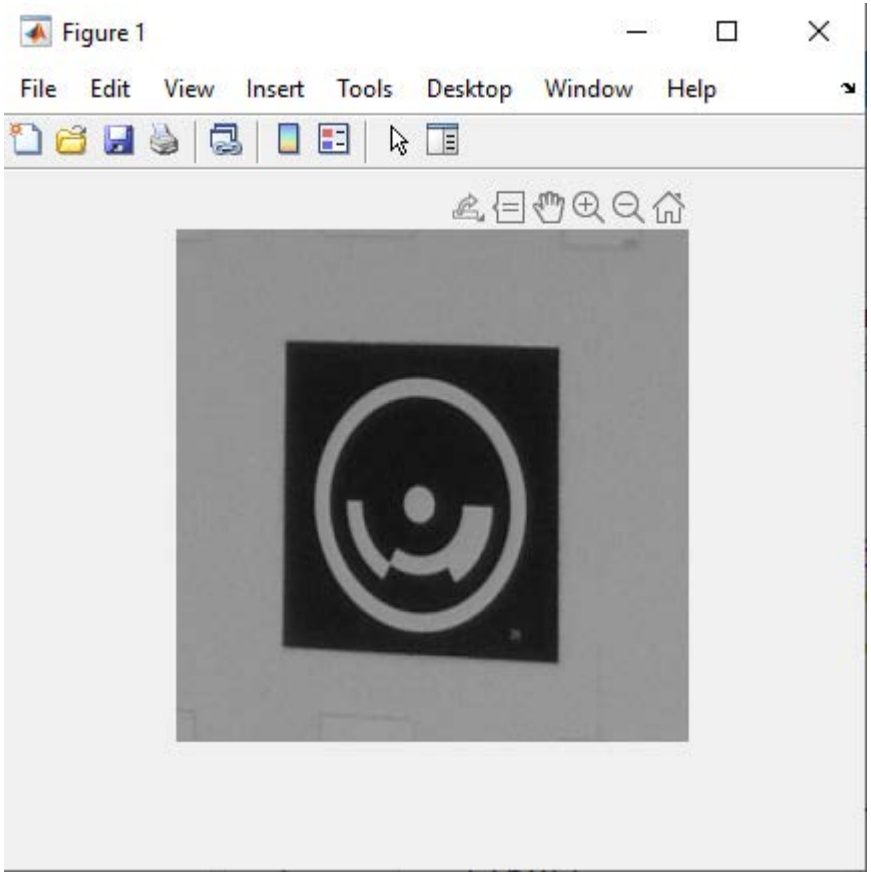
Figure 1
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Figure 2

File Edit View Insert Tools Desktop Window Help

prewitt

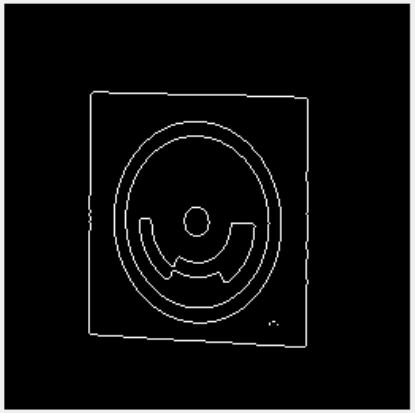

Figure 3

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sobel

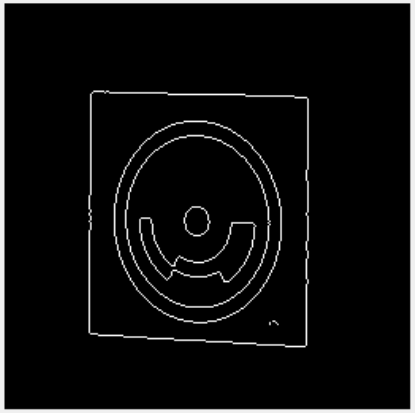

Figure 4

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roberts

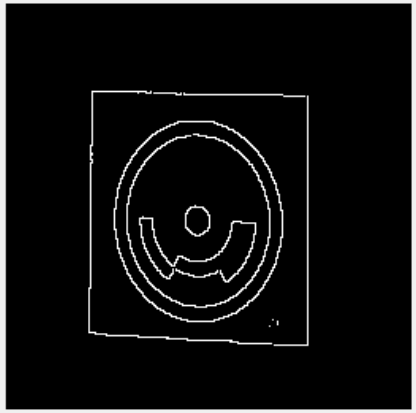
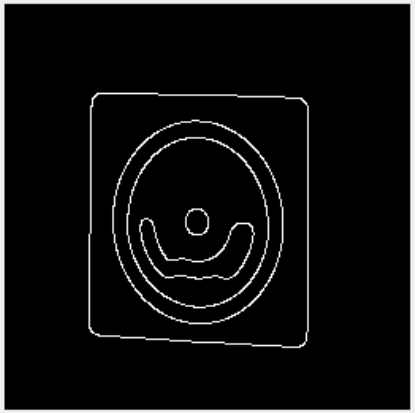


Figure 5

File Edit View Insert Tools Desktop Window Help

canny



3) Hough Transformation

m0903_Hough.m

```
clc
clear all
%imgGray = imread('image1.bmp');
imgGray = imread('gantrycrane.png');
imshow(imgGray);
title('input image');

image2 = edge(imgGray,"sobel");
figure;
imshow(image2);
title('sobel');

%[Houg, Thet, Rho] = hough(image2);
[Houg, Thet, Rho] = hough(image2, 'RhoResolution',0.5,'Theta',-90:0.5:89);

figure;
imshow( imadjust(rescale(Houg)), 'XData',Thet, 'YData',Rho, ...
    'InitialMagnification','fit');
%imshow( Houg, [],'XData',Thet, 'YData',Rho, 'InitialMagnification','fit');
title('Hough transform');
xlabel('\theta'), ylabel('\rho');
axis on, axis normal, hold on;
colormap(gca,"hot");
```

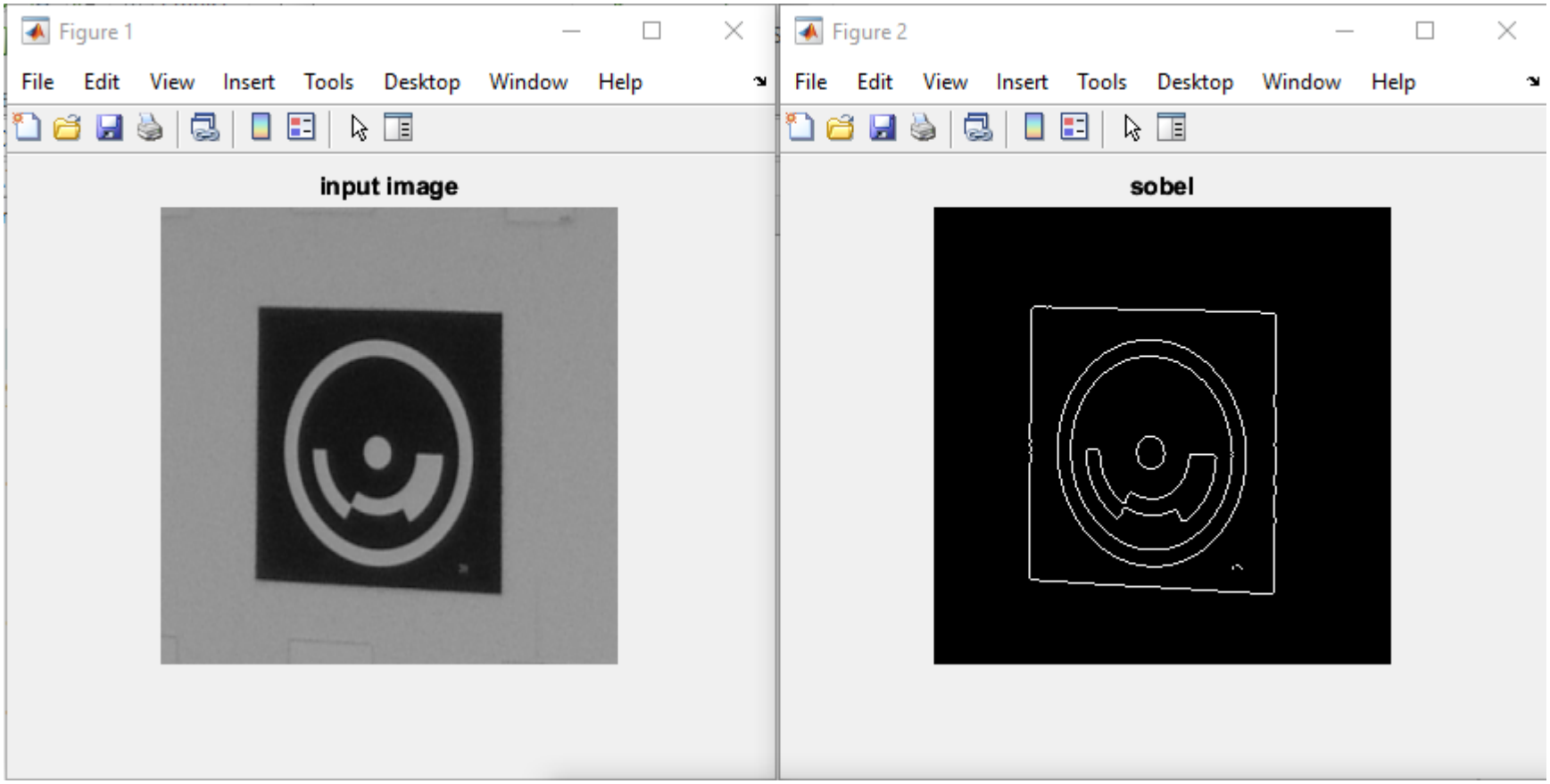


Figure 1
File Edit View Insert Tools Desktop Window Help
input image
Figure 2
File Edit View Insert Tools Desktop Window Help
sobel

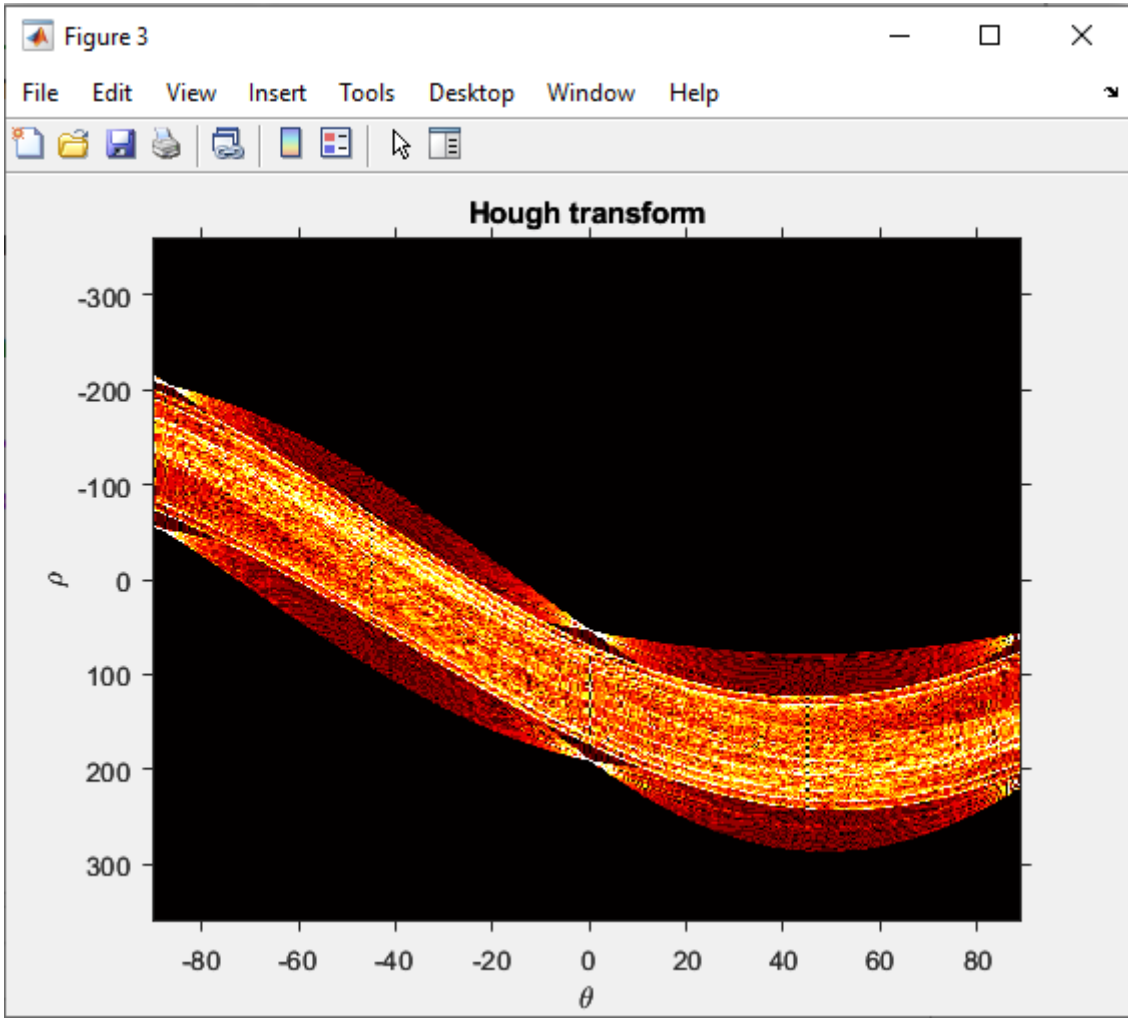


Figure 3
File Edit View Insert Tools Desktop Window Help
Hough transform
-300
-200
-100
0
100
200
300
ρ
-80 -60 -40 -20 0 20 40 60 80
θ