COMP 4687

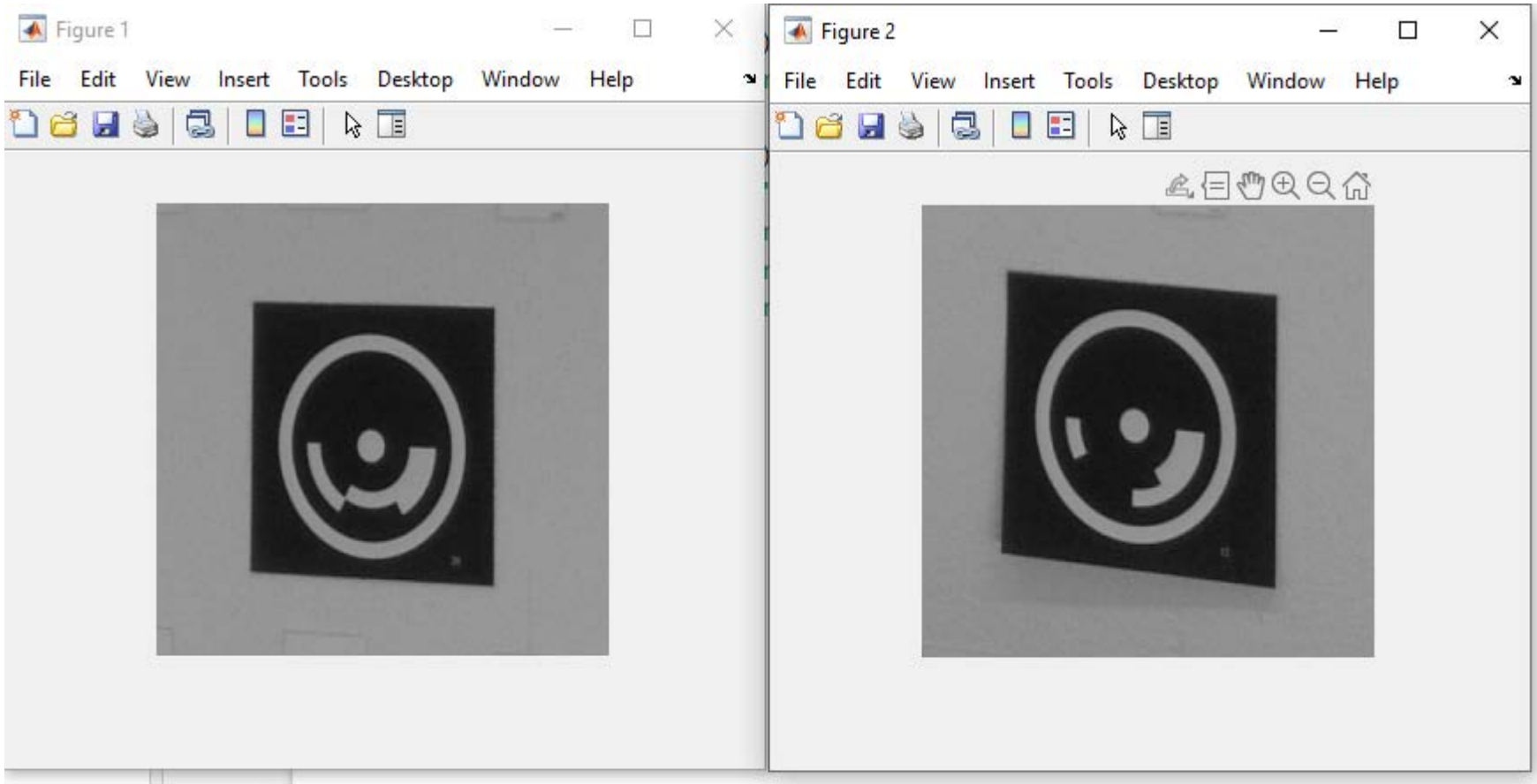
Week 10 Practice

1) Correlation Coefficient

m1001_corr_coefficient.m

```
clc
clear all
imgA = imread('image1.bmp');
%imgA = imread('image101.bmp');
imshow(imgA);
imgB = imread('image2.bmp');
%imgB = imread('image4.bmp');
%imgB = imread('image201.bmp');
%imgB = imread('image202.bmp');
%imgB = imread('image203.bmp');
figure
imshow(imgB);

rAB = corr2(imgA,imgB)
disp(rAB);
```



Command Window

```
rAB =

    0.6504

    0.6504

>>
```

2) Template matching with cross-correlation

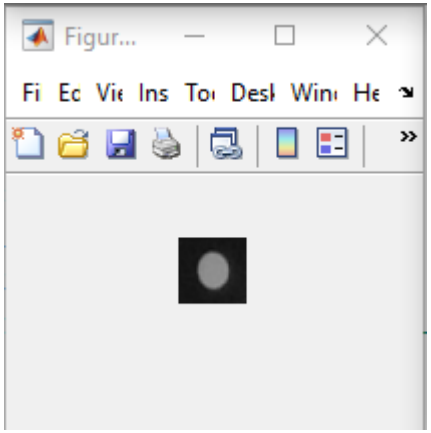
m1002_cross_corr.m

```
clc
clear all
templateImg = imread('image11.bmp');
%imshow(templateImg);
searchImg = imread('image1.bmp');
%figure
%imshow(searchImg);

%Perform cross-correlation, and display the result as a surface.
C = normxcorr2(templateImg,searchImg);
figure
surf(C)
shading flat

%Find the peak in cross-correlation.
[ypeak,xpeak] = find(C==max( C(:) ));

%Account for the padding that normxcorr2 adds.
yoffSet = ypeak - size(templateImg,1);
xoffSet = xpeak - size(templateImg,2);
%Display the matched area by using the drawrectangle function.
figure
imshow(templateImg);
figure
imshow(searchImg);
drawrectangle(gca,'Position',[xoffSet,yoffSet,size(templateImg,2),size(templateImg,1)], ...
    'FaceAlpha',0);
```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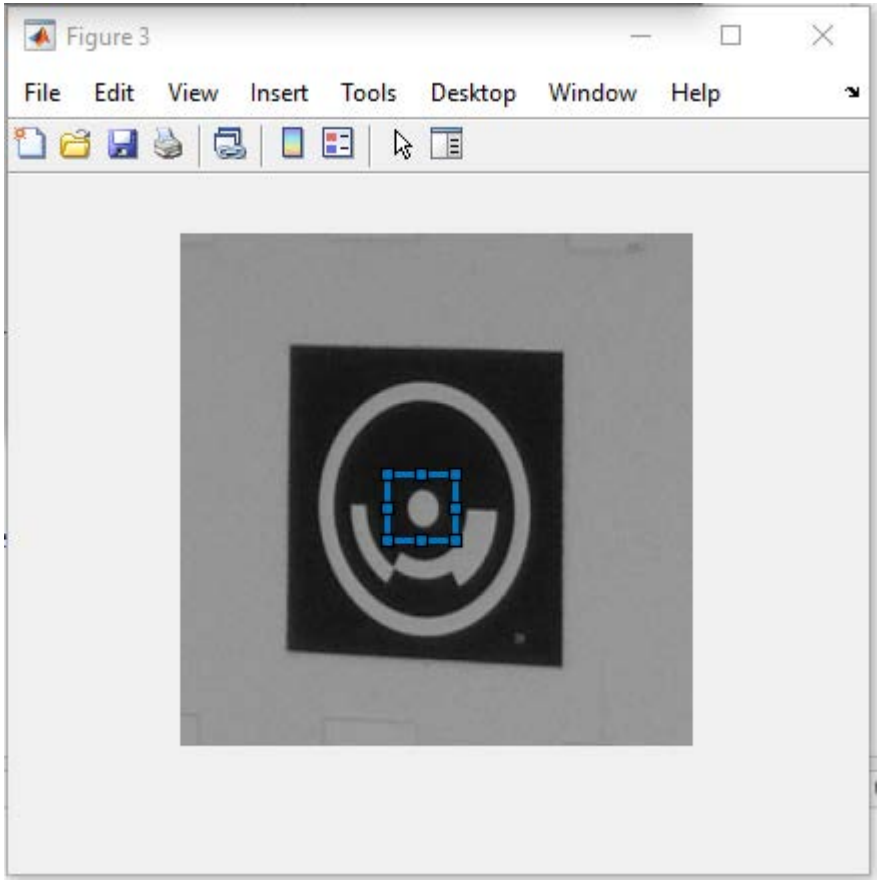
Figure 3
File Edit View Insert Tools Desktop Window Help

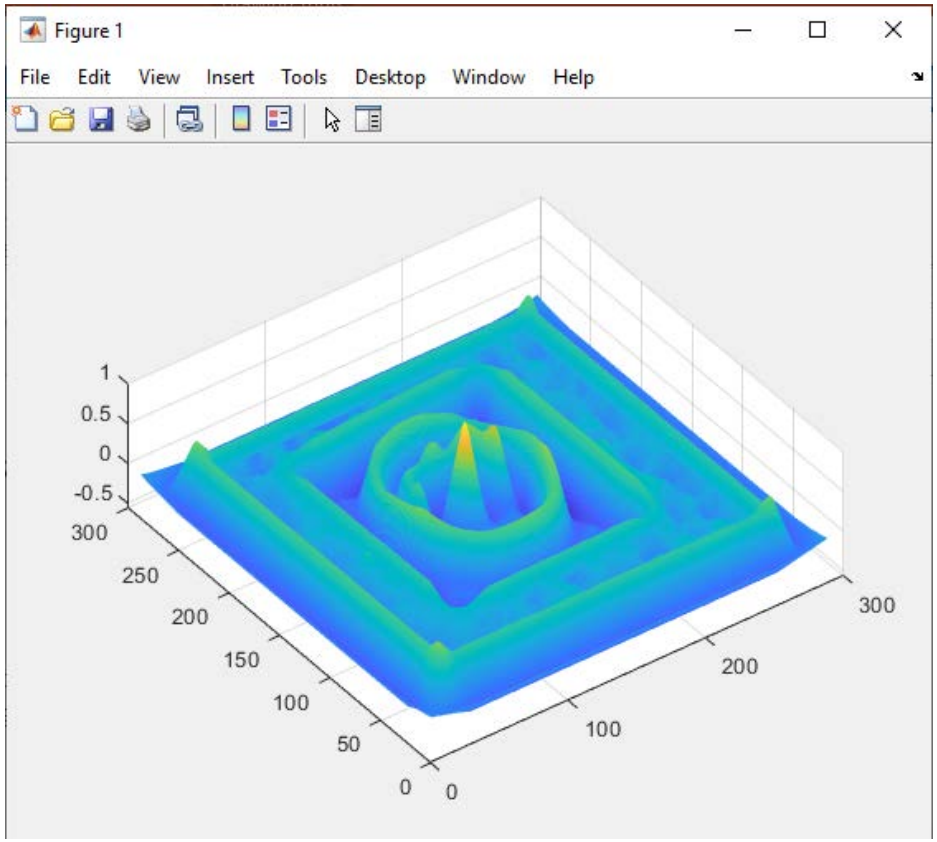
Figure 1
File Edit View Insert Tools Desktop Window Help
1
0.5
0
-0.5
300
250
200
150
100
50
0
0
100
200
300