```
function templateCrossCorrelation()

   clear all;
   clc;
   close all;
```

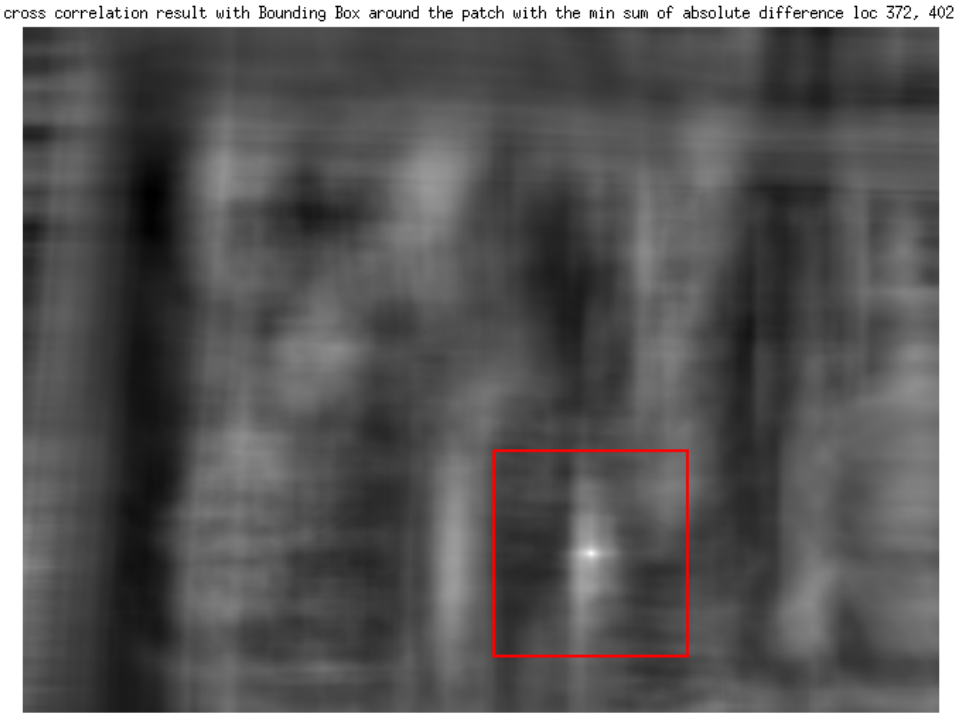
input reading

```
   %read input image
   imgOrg = imresize(imread('vegan-modified.jpg'),0.5);
   template = double(imresize(imread('soy-dessert.jpg'), 0.5));
   windowSize = size(template);
   img = imgOrg;
   img = padarray(imgOrg, floor(windowSize/2), 'replicate');
   dim = size(imgOrg);
```

normalized cross correlation

```
   loc = [];
   resMax = 0;
   result = ones(size(imgOrg))*255;
   mnTemplate = mean(template(:));
   stdTemplate = std(template(:));
   tempDiff = (template(:) - mnTemplate)/stdTemplate;
   maxVal = 0;

   for i = 1:dim(1)
      for j = 1:dim(2)

          %define the patch of image
           I = double(img(i:i + windowSize(1) -1 , j: j + windowSize(2) - 1));

           %distance metric
           mnI = mean(I(:));
           stdI = std(I(:));

           %dot product of the zero mean image patch and the template
           temp = ((I(:) - mnI)'*tempDiff);

           %cross correlation value
           result(i,j) = temp/ (stdI);


           %find the maximum cross correlation value
           if result(i,j) > resMax
               resMax = result(i,j);
               loc = [i j];
               maxVal = result(i,j);
           end
```

```
    end
end


drawnow;
hold on;

imshow(imgOrg);
rectangle('Position', [loc(2) - windowSize(2)/2, loc(1) - windowSize(1)/2, wind
title(['Image with Bounding Box around the patch with the min sum of absolute d
figure;
imshow(mat2gray(result));
rectangle('Position', [loc(2) - windowSize(2)/2, loc(1) - windowSize(1)/2, wind
title(['cross correlation result with Bounding Box around the patch with the mi
hold off;
```




```
end
```

Published with MATLAB® 8.0