
```

function templateMatching()

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

    loc = [];
    %intialize the min value to a large value
    resMin = 10^9;

    %initialize the sum of difference matrix
    result = ones(size(imgOrg))*255;

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

            %find the midpoint of the window0
            mid = double(img(i+ floor(windowSize(1)/2),j+floor(windowSize(2)/2)));

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

            %subtract the image patch and template
            temp = (I - template);

            %sum of absoulte difference
            result(i,j) = sum(abs(temp(:)));

            %find the min intensity value in the sum of absolute difference
            if result(i,j) < resMin
                resMin = result(i,j);
                loc = [i j];
            end
        end
    end

    disp(['The location of min intensity is at location ' num2str(loc(1)) ', ' num2str(loc(2))]);
    figure;
    drawnow;
    hold on;
    figure;
    imshow(imgOrg);
    rectangle('Position', [loc(2) - windowSize(2)/2, loc(1) - windowSize(1)/2, windowSize(2), windowSize(1)]);
    title(['Image with Bounding Box around the patch with the min sum of absolute difference']);
    figure;

```

```
imshow(mat2gray(result));  
rectangle('Position', [loc(2) - windowSize(2)/2, loc(1) - windowSize(1)/2, windowSize(2), windowSize(1)]);  
title(['Sum of absolute difference Image with bounding box at ' num2str(loc(1))]);  
end
```

The location of min intensity is at location 372, 402

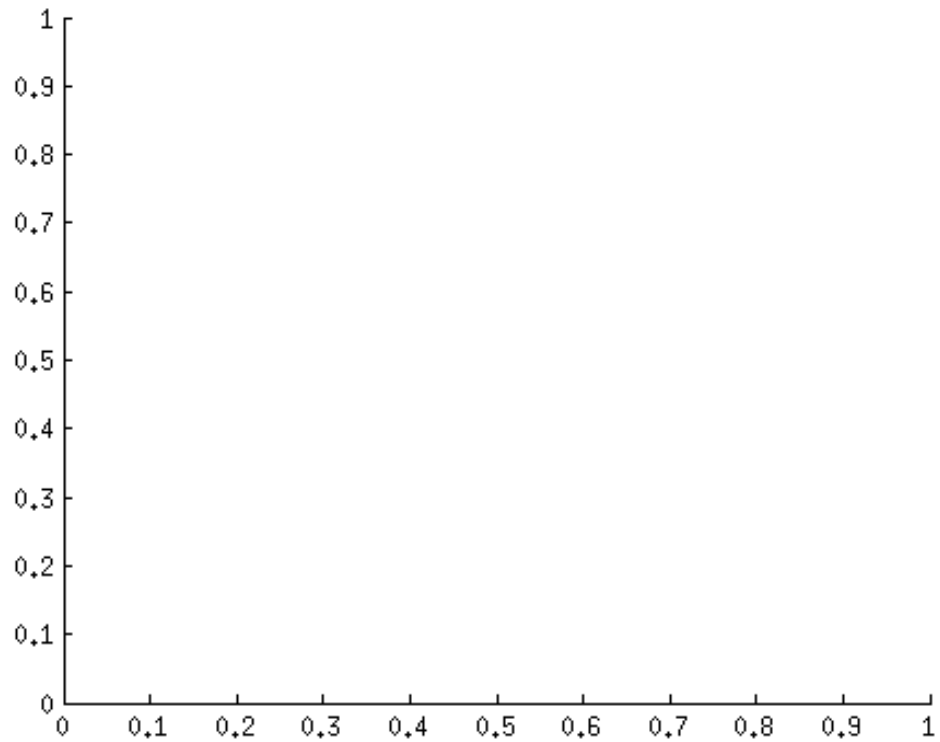
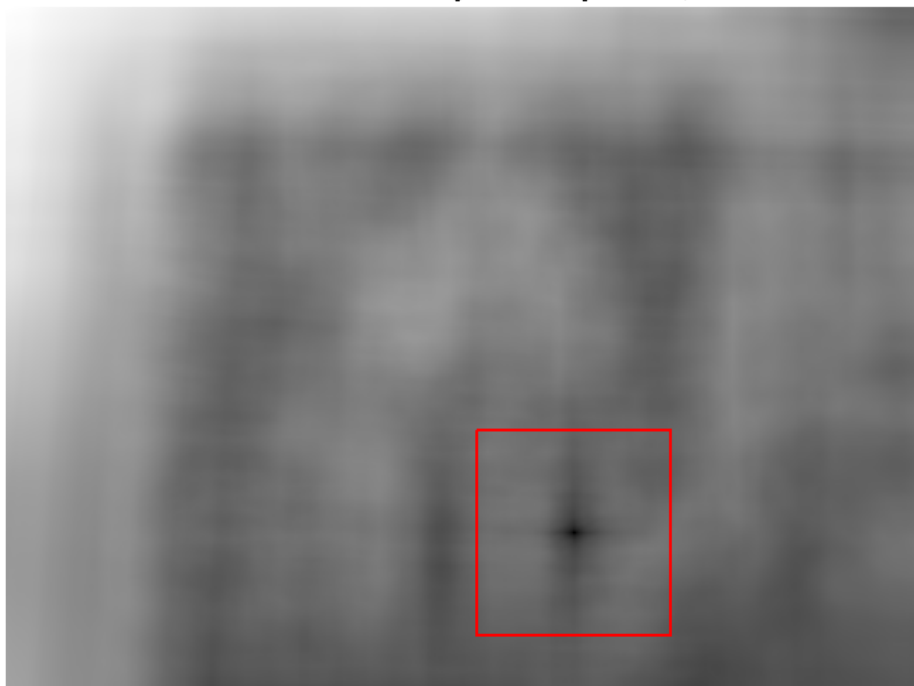


Image with Bounding Box around the patch with the min sum of absolute difference loc 372, 402



Sum of absolute difference Image with bounding box at 372, 402



Published with MATLAB® 8.0