Image Processing 2

Prepared by

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Codes

```
 % Clear workspace
clear all
close all

% Load image from filesystem
input_image = imread('./rectengular_image.PNG');
first_image= input_image; %assigns the image to another variable.

% Detect edges using Canny algorithm
Edge = edge(input_image(:,:,1), 'Canny'); % Using red channel only

% Find edges of objects
bwb = bwboundaries(Edge);

figure;
subplot(1, 2, 1); imshow(first_image); title('Input'); %shows the input image
subplot(1, 2, 2); imshow(input_image); title('Output'); %shows the output image
hold on;

% Merge boundaries to draw all boundaries
for k = 1:length(bwb)
boundary = bwb{k}; %It takes the sides of the rectangle.
boundary_x = boundary(:, 2);
boundary_y = boundary(:, 1);

% Adds NAN to merge edges.
boundary_x(end+1) = NaN;
boundary_y(end+1) = NaN;

% Draw edge
plot(boundary_x, boundary_y, 'r', 'LineWidth', 3);
end
```

Description

The code was used for image processing and visualization in the MATLAB environment. The processed image is rectangular and loaded from the 'rectengular_image.PNG' file.

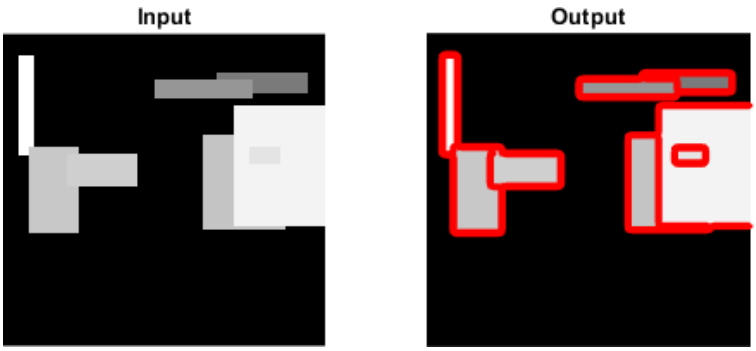
Begins with the %Clear workspace row marked. This line ensures that all variables in the current MATLAB workspace are cleared. An image is then loaded from the './rectengular_image.PNG' file and assigned to the input_image variable.

Parts are detected using Canny edge detection[1]. The edge function implements Canny edge detection on the red channel (input_image(:,:,1)). As a result of this process, a binary image is obtained as an edge.

The edges of objects in the Edge binary image are found using the "bwboundaries" function[2]. These edges are then drawn as a line in red with a thickness of 3 pixels via the plot function.

The output was displayed as two subimages (subgraphs) in the MATLAB display. The first subimage shows the original loaded view (first_image) and is labeled under the "Input" heading. The second subimage shows the image with detected edges (input_image) and is labeled under the heading "Output".

Output



References

[1] https://www.mathworks.com/help/images/ref/edge.html

[2] https://www.mathworks.com/help/images/ref/bwboundaries.html