MV_Lab3_Taher-Vora

Code:

```
%% Import image
image = imread('balloons.jpg');  % Read an image
figure,imshow(image)

%% Changing RGB to Gray.
imgr = rgb2gray(image);              % Convert image to gray of scale 0-1
imgr = im2double(imgr);              % Changes the unit8 to double
figure, imshow(imgr);

%% Outer edges of balloons without using edge function.
imred = image(:,:,1);
imgreen = image(:,:,2);
imBlue = image(:,:,3);                % Using Blue channel
imgr = im2double(imBlue);

%montage({imred, imgreen,imBlue})
threshold = 0.11;

% Create normalized sobel masks
sobelY = [1,2,1; 0,0,0; -1,-2,-1]/8;
sobelX = sobelY';

% Calculate the x & y gradients
gX = imfilter(imgr, sobelX, 'replicate');
gY = imfilter(imgr, sobelY, 'replicate');

% Calculate the gradient magnitude
gMag = sqrt(gX.^2 + gY.^2);

% Threshold the gradient magnitude and
e1 = gMag > threshold;
figure, imshow(e1);

%% Count total number of balloons.
imBlue = image(:,:,3)>= 64 & image(:,:,3)<=150;
%figure, imshow(imBlue);
bincomp = imcomplement(imBlue);
%figure, imshow(bincomp);
se=strel('disk',4);
afterOpening=imopen(bincomp,se);
afterClosing=imclose(afterOpening,se);     %Remove noise.
cc = bwconncomp(~afterClosing,4);
number  = cc.NumObjects;                   %Number of balloons

%% Adding Title to image.
figure
imshow(image)
title(['Number of balloons are ',num2str(number)])
```

```
%% Choose a random balloon and convert it to white.
%binary=im2bw(image,0.33);
crop=imcrop(image,[653 320 200 150]);
%imred = image(:,:,1);
%imgreen = image(:,:,2);
imBlue = crop(:,:,3);                % Using Blue channel
crop_img = im2double(imBlue);
%figure, imshow(crop_img);
level = 0.3;
bin = im2bw(crop_img, level);
figure, imshow(~bin);

%% Rotate image by 60 degree.
rotate = imrotate(crop,60);
figure
imshow(rotate)
```

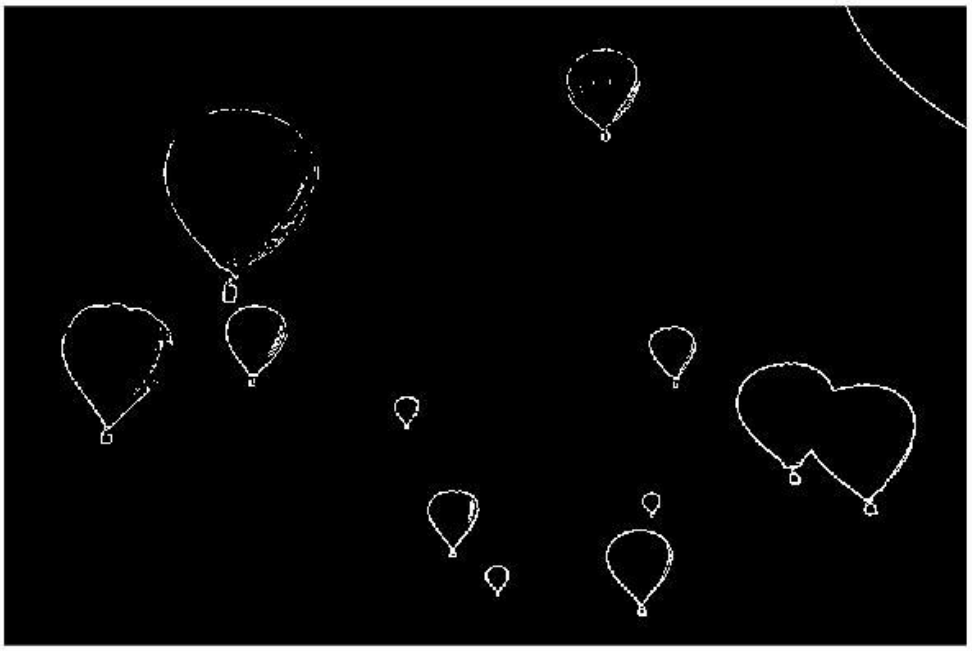

Figure1: Edge without using EDGE function

Figure 2: Title with number of balloons.

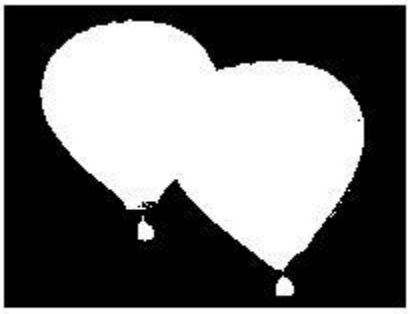

Figure 3: Convert balloon pixels to white pixels

Figure 4: Rotate image 60 degree

Question: To change position of balloon by 20 pixels.

Ans: For this ,I thought we can get the position of the object in the image and then add 20 to the x and y coordinates. Unfortunately was not able to code out this part.