```
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% Here we are reading the image for Hough Transform and displaying it
I = imread('circuit.tif');
imshow(I);
```
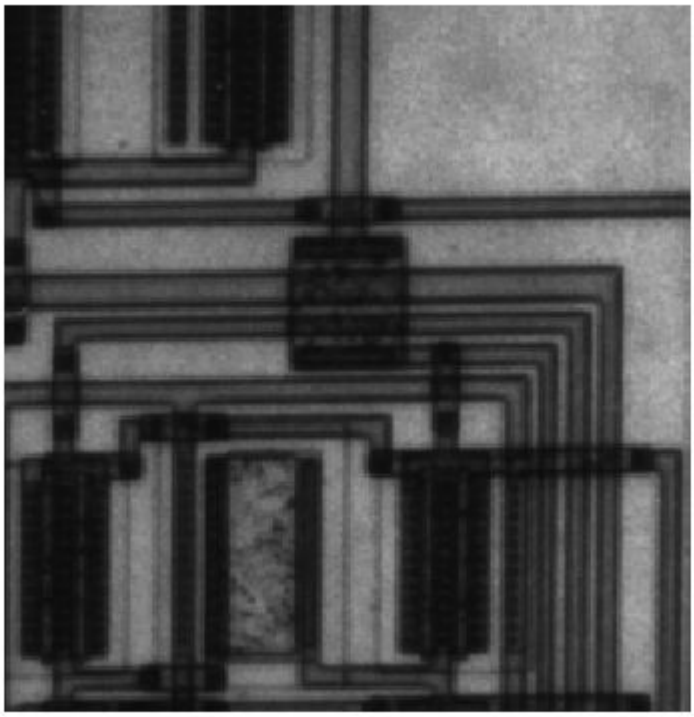
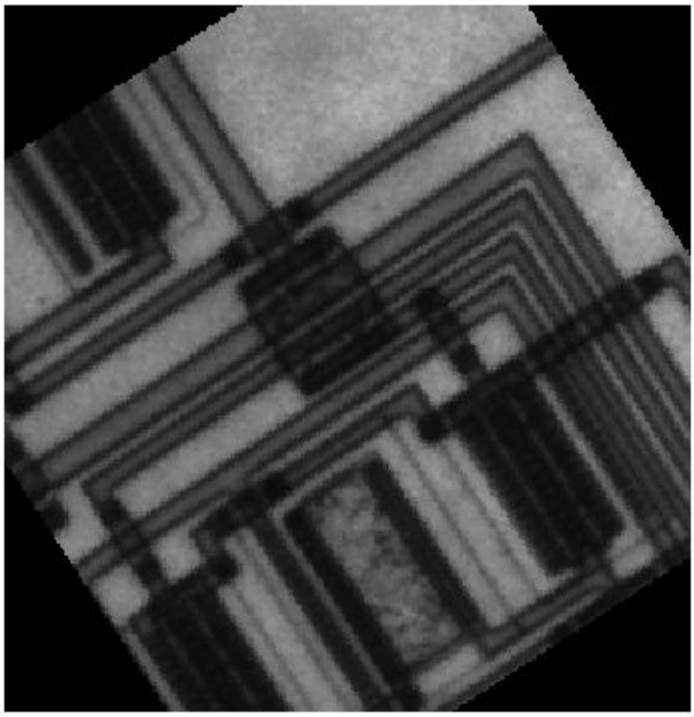
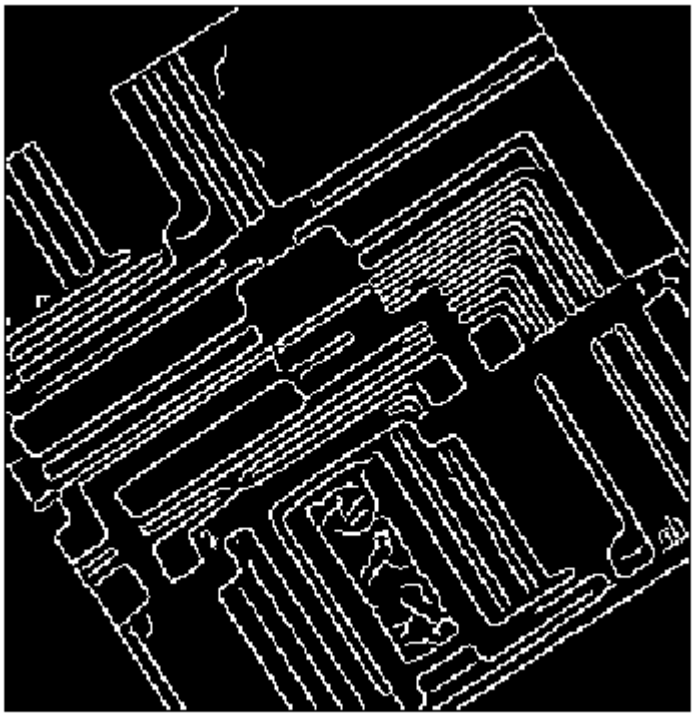



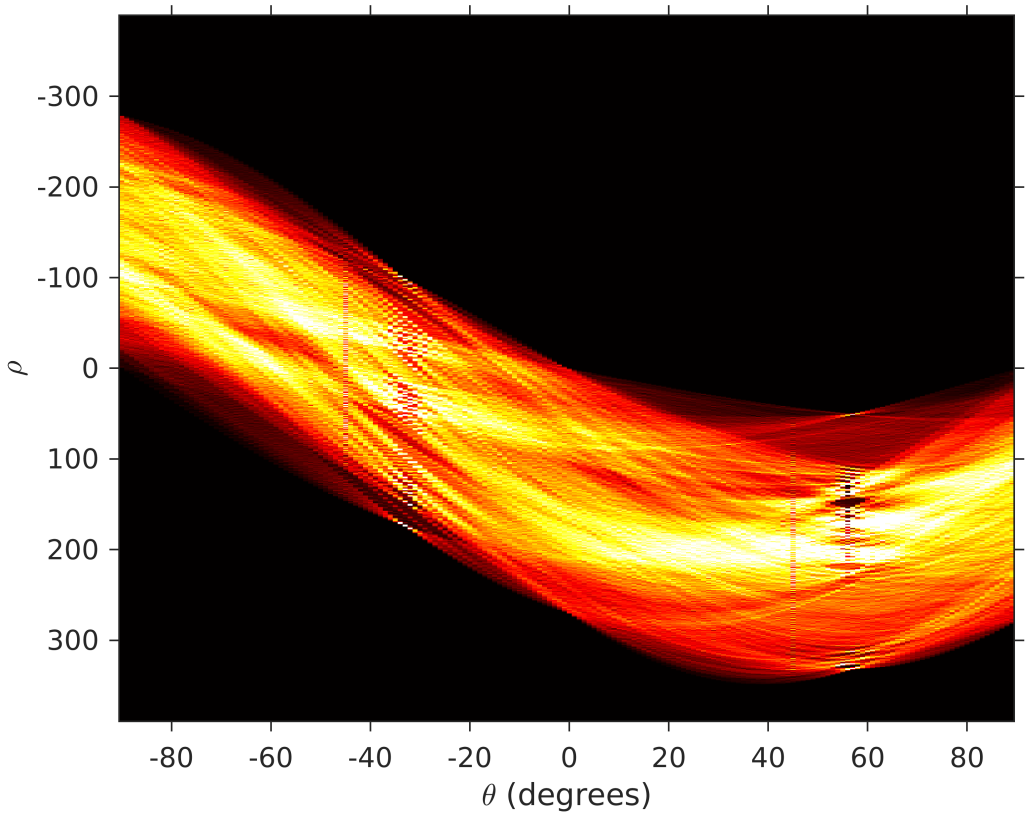
```
% Then we are rotating the image to 33 Degrees
rotI = imrotate(I,33,'crop');
imshow(rotI)
```



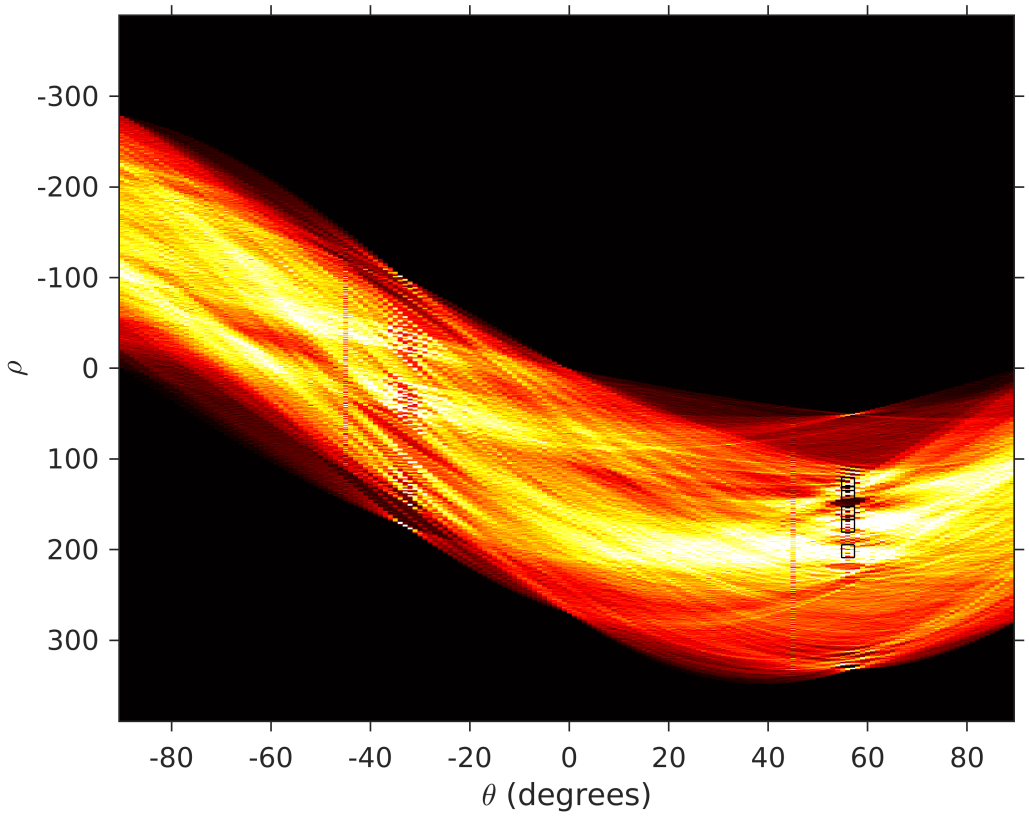
```
% here we are finding the edges using edge function
BW = edge(rotI,'canny');
imshow(BW);
```



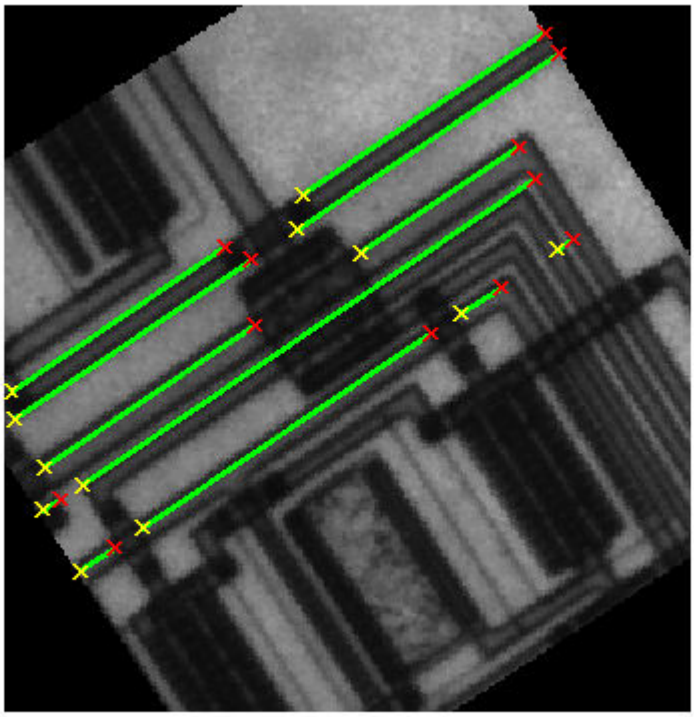
```
% Here we are Computing the Hough transform of the image (binary Image)
% returned by edge function
[H,theta,rho] = hough(BW);
% Display the transform H, returned by the hough function.
figure
imshow(imadjust(rescale(H)),[],...
    'XData',theta,...
    'YData',rho,...
    'InitialMagnification','fit');
xlabel('\theta (degrees)')
ylabel('\rho')
axis on
axis normal
hold on
colormap(gca,hot)
```




```
% Find the peaks in the Hough transform matrix, H, using the houghpeaks function.
P = houghpeaks(H,5,'threshold',ceil(0.3*max(H(:))));
% Super impose the plotting to find the Peaks
x = theta(P(:,2));
y = rho(P(:,1));
plot(x,y,'s','color','black');
```




```
% Now find the line through the hough line function
lines = houghlines(BW,theta,rho,P,'FillGap',5,'MinLength',7);
% Create a plot that displays the original image with the lines superimposed on it.
figure, imshow(rotI), hold on
max_len = 0;
for k = 1:length(lines)
    xy = [lines(k).point1; lines(k).point2];
    plot(xy(:,1),xy(:,2),'LineWidth',2,'Color','green');
    % Plot beginnings and ends of lines
    plot(xy(1,1),xy(1,2),'x','LineWidth',2,'Color','yellow');
    plot(xy(2,1),xy(2,2),'x','LineWidth',2,'Color','red');
    % Determine the endpoints of the longest line segment
    len = norm(lines(k).point1 - lines(k).point2);
    if ( len > max_len)
        max_len = len;
        xy_long = xy;
    end
end
```



```
% highlight the longest line segment
plot(xy_long(:,1),xy_long(:,2),'LineWidth',2,'Color','red');
```