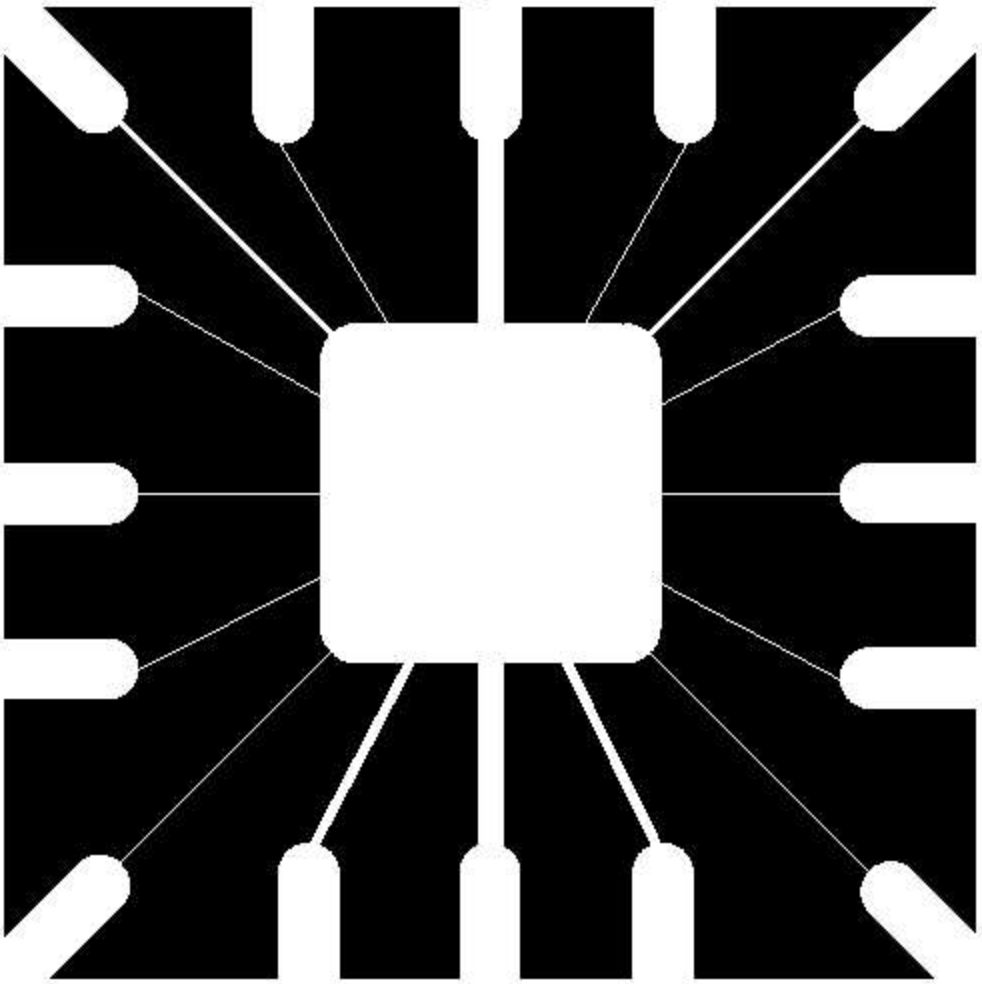
IP-LAB 12

- **JAINIL TRIVEDI (CE144)**

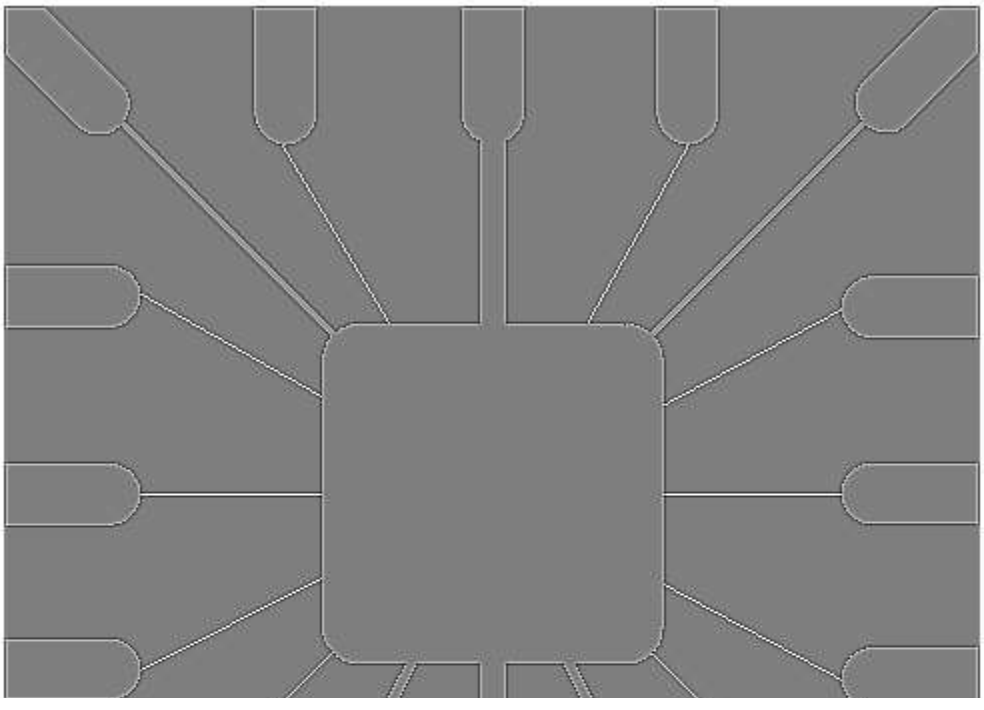
AIM: Perform image segmentation.

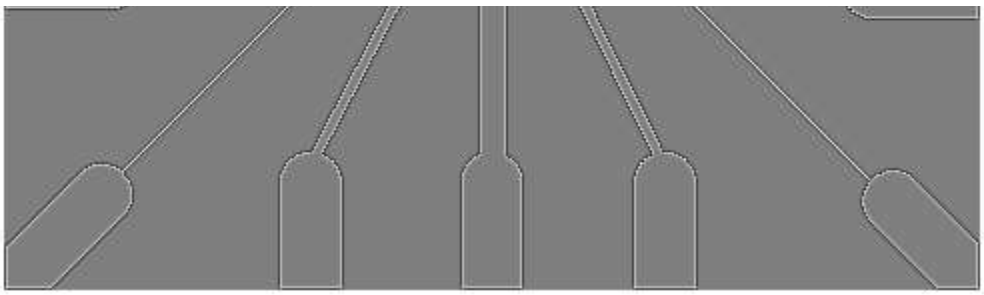
```
mask = [-1,-1,-1;-1,8,-1;-1,-1,-1];
img = imread('wirebond.tif');
figure(1),imshow(img);
title('original');
img = double(img);
lap = conv2(img,mask);
figure(2),imshow(lap,[]);
title('conv2');


figure(3),imshow(abs(lap));
title('absolute');


figure(4),imshow(uint8(lap));
title('positive');
```

original

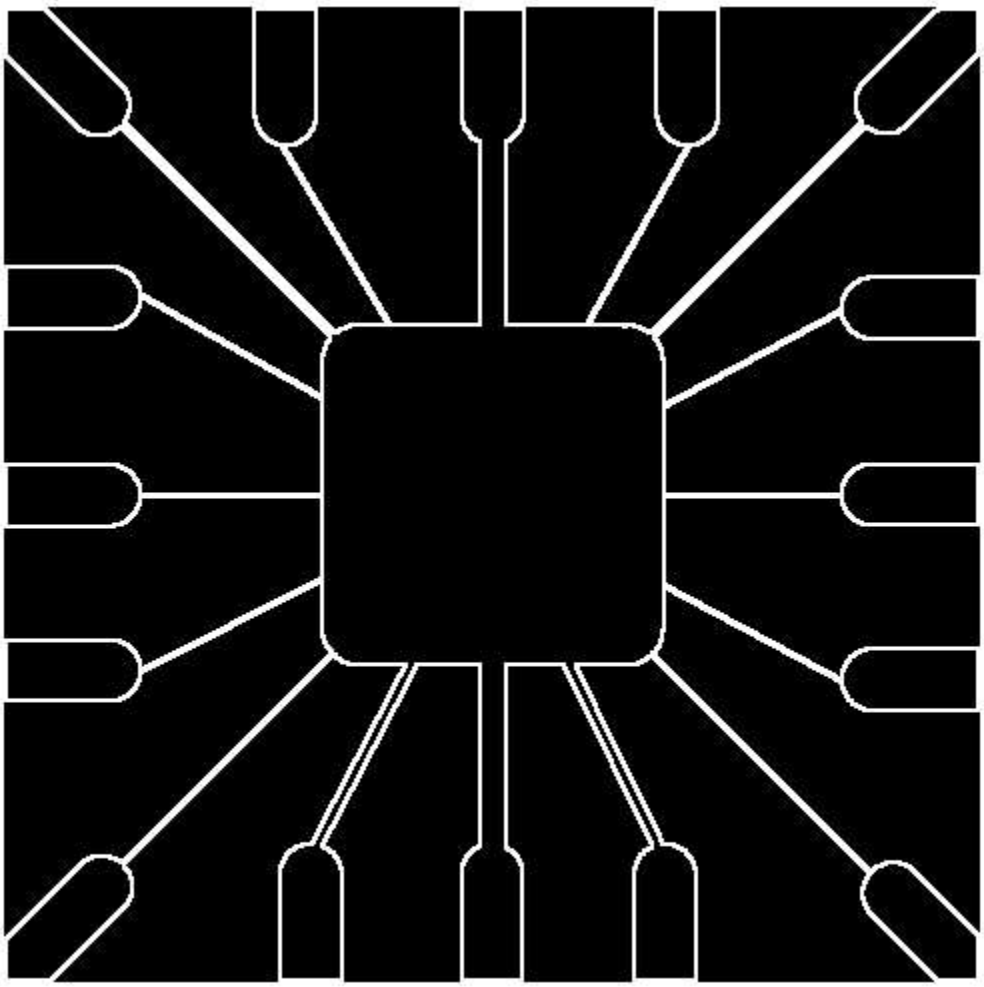


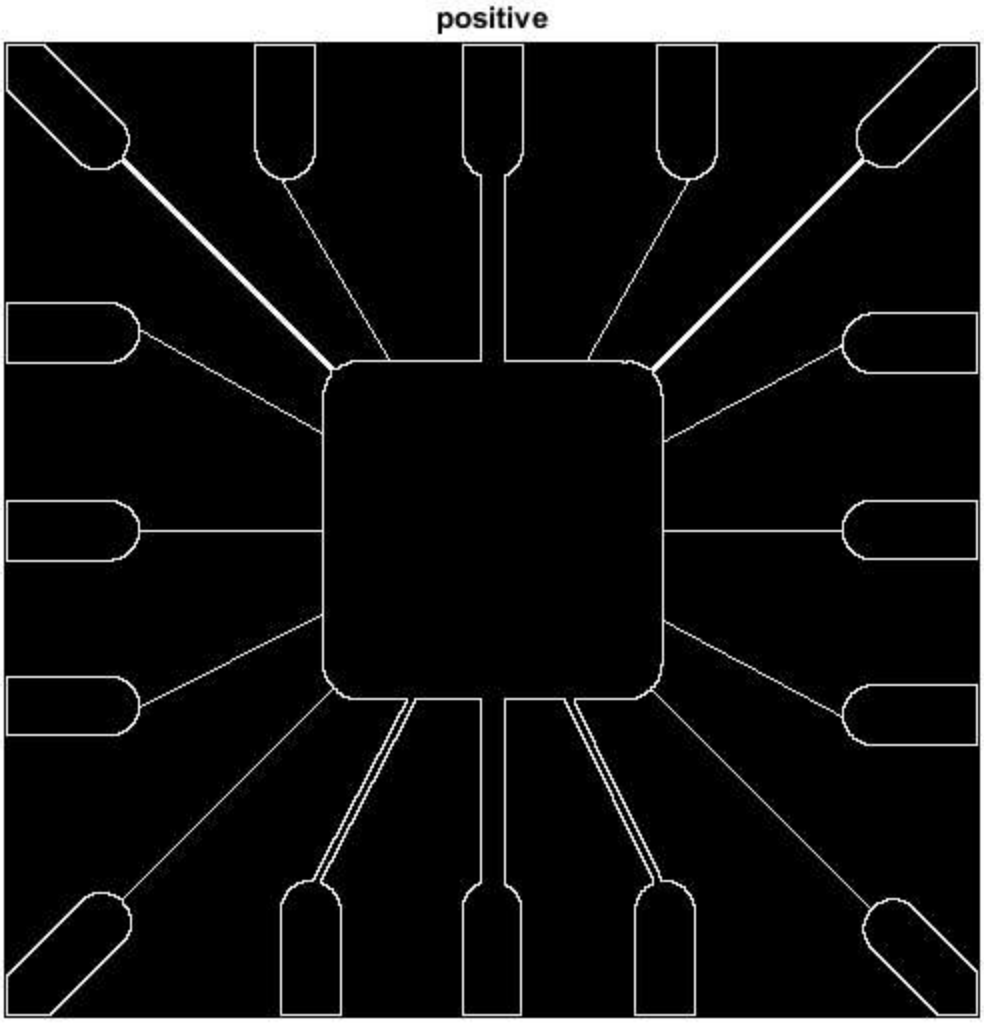
conv2





absolute





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```
img = imread('building.tif');
figure(1),imshow(img);
title('original');

gx = [-1,-2,-1;0,0,0;1,2,1];
gy = [-1,0,1;-2,0,2;-1,0,1];


imgx = imfilter(img,gx);
figure(2),imshow(imgx);
title('x');

imgy = imfilter(img,gy);
figure(3),imshow(imgy);
title('y');

imgf = imgx+imgy;
figure(4),imshow(imgf);
title('magnitude');
```

```
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```
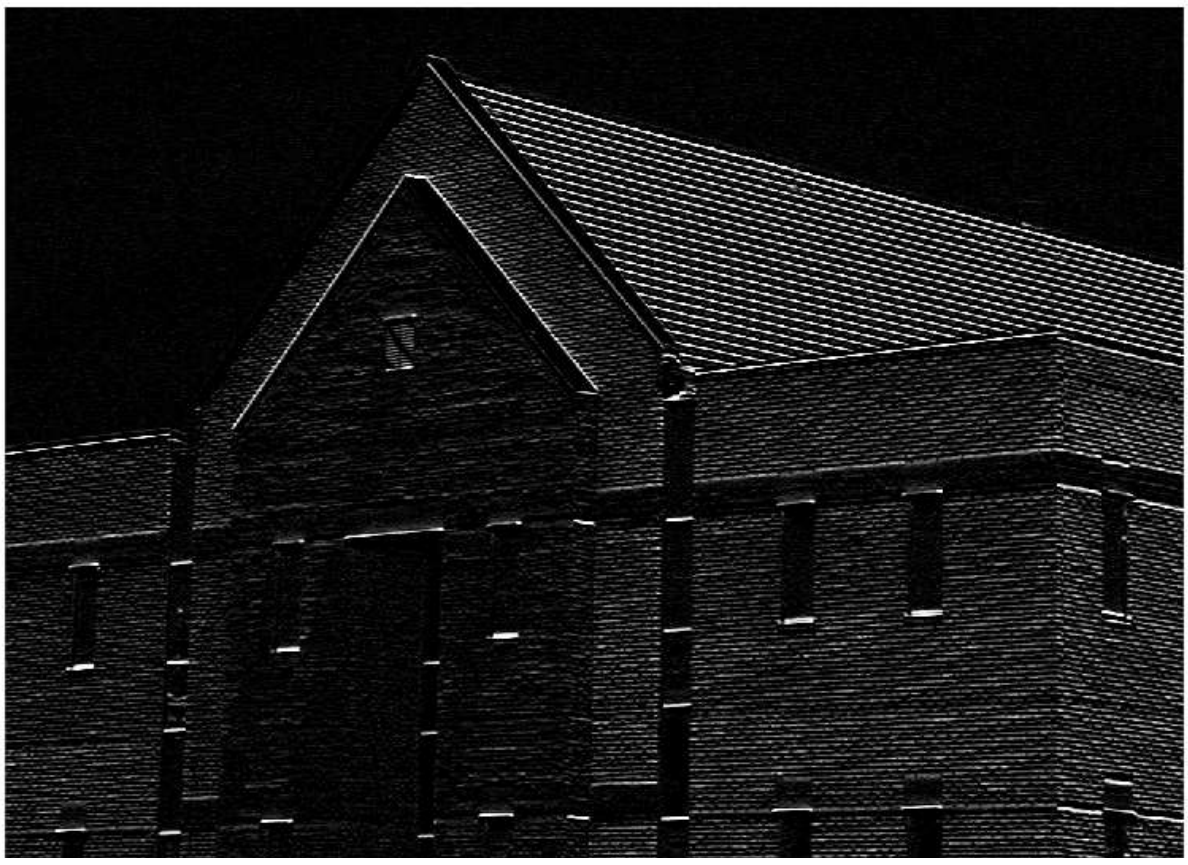
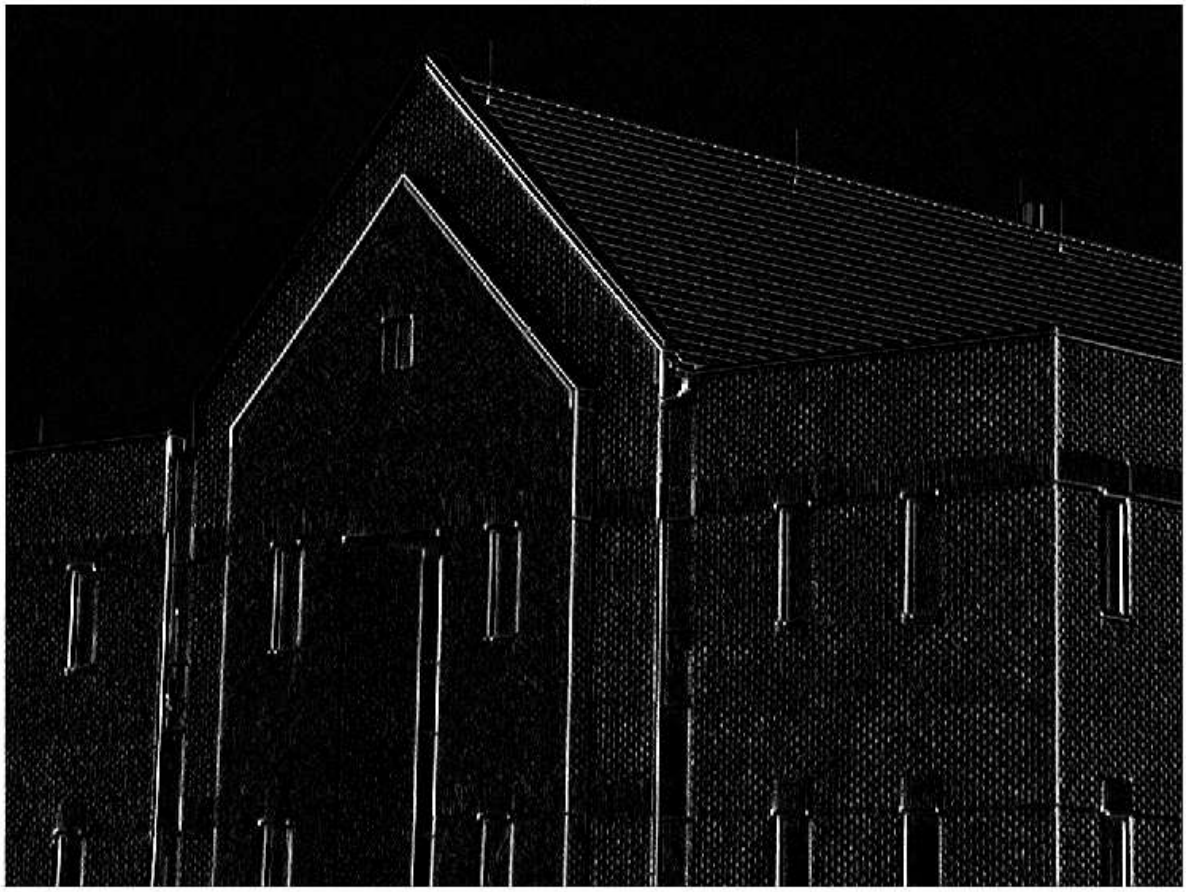
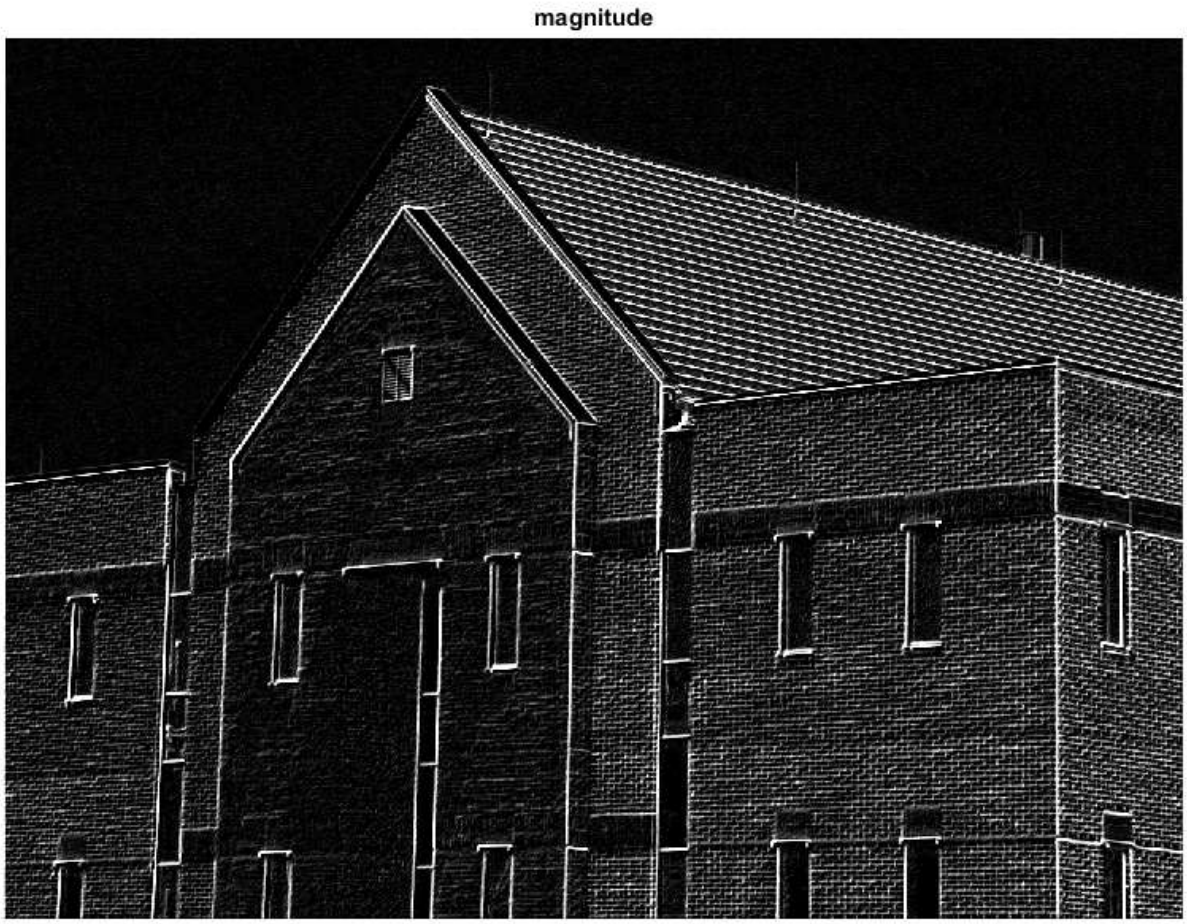

original

x



y





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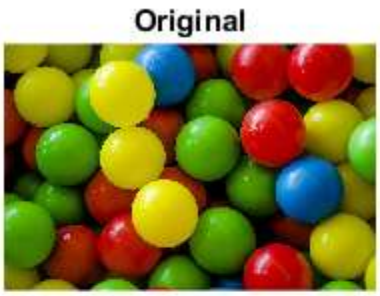
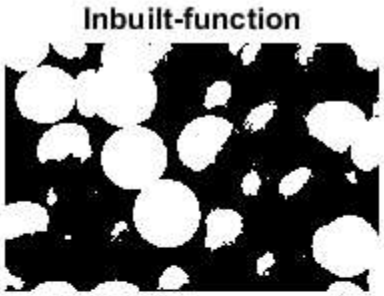
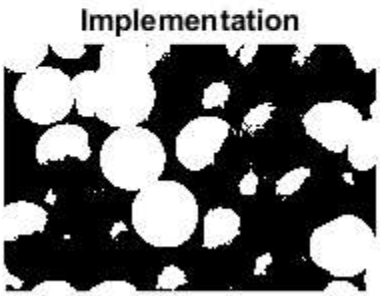
```
clear;
img = imread('balloons.jpg');
subplot(2,2,1),imshow(img);
title('Original');

success = imread('ThumbsUp.jpg');
failure  = imread('ThumbsDown.jpg');

ot1 = graythresh(rgb2gray(img));
ot = im2bw(img,ot1);

subplot(2,2,2),imshow(ot);
title('Inbuilt-function');

freq = imhist(rgb2gray(img));

prob = [];
for i=1:size(freq)
    prob(i) = freq(i)/256;
end

th = 0;
max_var = 0;
for t=2:256
    p1 = sum(prob(1:t));
    p2 = sum(prob(t+1:256));
    m1 = dot([0:t-1],prob(1:t))/p1;
    m2 = dot([t:255],prob(t+1:256))/p2;
    var = p1*p2*power((m2-m1),2);
    if var > max_var
        max_var = var;
        th = t-1;
    end
end

myot = im2bw(img,th/255);
subplot(2,2,3),imshow(myot);
title('Implementation');

if(myot == ot)
    subplot(2,2,4),imshow(success);
else
    subplot(2,2,4),imshow(failure);
end
```







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