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Edge Detection

```
%Read image
I = imread('building.jpg');
figure, imshow(I);
title('Original Image');
```

```
Warning: Image is too big to fit on screen; displaying at 67%
```

Convert rgb to gray image

```
row = size(I,1);
coloumn = size(I,2);
N = double(zeros(size(I,1),size(I,2)));
```

```
for r = 1:row
for c = 1:coloumn
   N(r,c,1) = abs(0.3*I(r,c,1) + 0.6*I(r,c,2) + 0.11*I(r,c,3));
end
end

imshow(uint8(N));
title('Grayscale Image');
```

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sobel mask

```
h = [-1 0 1; -2 0 2; -1 0 1]; % horizontal
v = [1 2 1; 0 0 0; -1 -2 -1]; % vertical

M = double(zeros(size(I,1),size(I,2)));
```

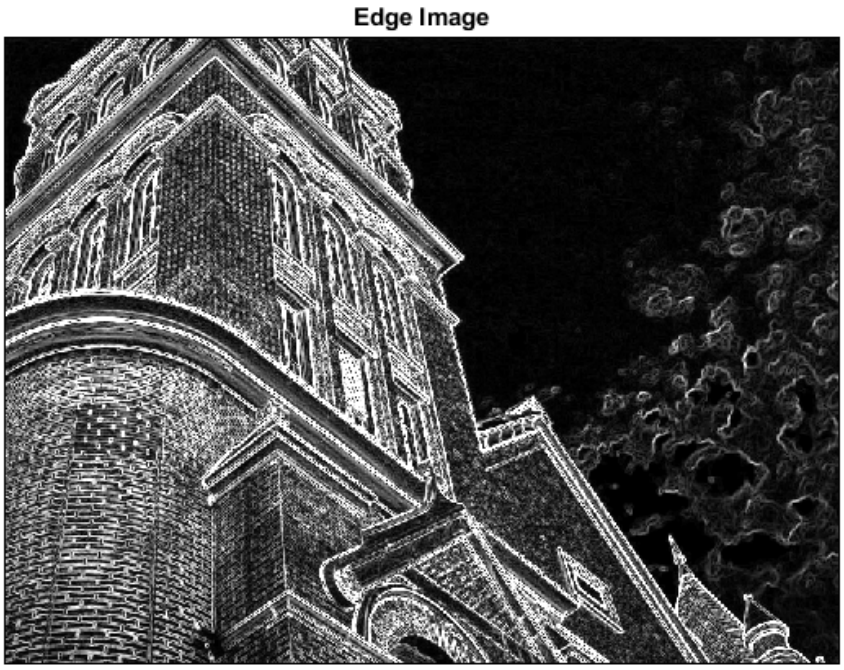
Detect Edge

```
for i=1:size(N,1)-2
for j=1:size(N,2)-2
    %Gradient operations
    Gx=sum(sum(v.*N(i:i+2,j:j+2)));
    Gy=sum(sum(h.*N(i:i+2,j:j+2)));
    %Magnitude of vector
```

```
    M(i+1,j+1)=sqrt(Gx.^2+Gy.^2);
end
end

figure, imshow(uint8(M));
title('Edge Image');
```

Warning: Image is too big to fit on screen; displaying at 67%



Set the pixel value zero that is under the threshold value and 255 that is upper the value.

```
for r = 1:row
for c = 1:coloumn
  if M(r,c)>210
    M(r,c)=255;
  else
    M(r,c)=0;
  end
end
end

figure, imshow(M);
title('Sharp Edges');
```

Warning: Image is too big to fit on screen; displaying at 67%

Overlay edge image with the original image

```
for r = 1:row
for c = 1:coloumn
  if M(r,c)==255
    I(r,c, 1)=255;
    I(r,c, 2) =255;
    I(r,c, 3) = 0;
  end
end
end

figure, imshow(I)
title('Final Image');
```

```
Warning: Image is too big to fit on screen; displaying at 67%
```

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