Maimoona Khilji
BS-DS
Semester 6

MATLAB Line Detection

Maimoona Khilji

Institute of Management Science

Course Code: Image Processing and Analysis

Muhammad Saad Rashad

25th May, 2022

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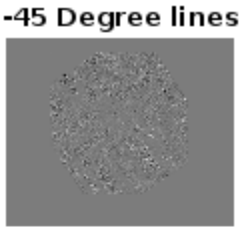
Task Line Detection

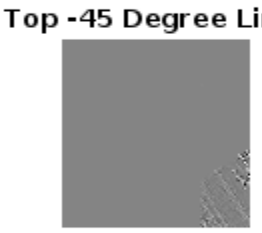
Write a code to implement line detection using horizontal, -45, and vertical masks.

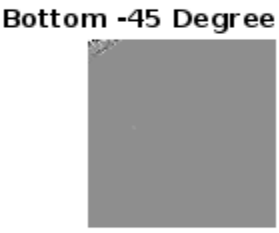
-45 Degree

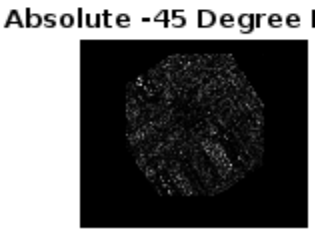
Code:

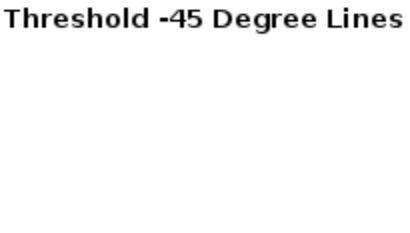
```
f= imread('circuit.jpg');
subplot(3,2,1)
imshow(f,[])
title("original Image")

w=[2 -1 -1; -1 2 -1;-1 -1 2];
g=imfilter(double(f),w);
subplot(3,2,2)
imshow(g,[])
title("-45 Degree lines")

gtop=g(1:120, 1:120);
subplot(3,2,3)
imshow(gtop,[])
title("Top -45 Degree Lines")

gbot =g(end-119:end,end-119:end);
subplot(3,2,4)
imshow(gbot,[])
title("Bottom -45 Degree Lines")

g= abs(g);
subplot(3,2,5)
imshow(g,[])
title("Absolute -45 Degree Lines")

T = max(g(:));
g=g>=T;
subplot(3,2,6)
imshow(T)

title("Threshold -45 Degree Lines")
```











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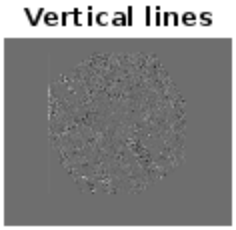
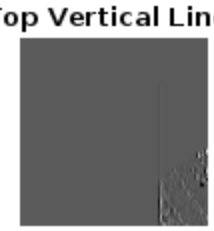
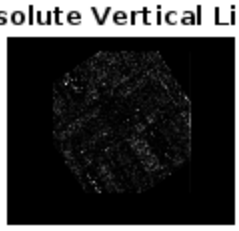
Vertical Line

```
f= imread('circuit.jpg');
subplot(3,2,1)
imshow(f,[])
title("original Image")

w=[-1 2 -1; -1 2 -1;-1 2 -1];
g=imfilter(double(f),w);
subplot(3,2,2)
imshow(g,[])
title("Vertical lines")

gtop=g(1:120, 1:120);
subplot(3,2,3)
imshow(gtop,[])
title("Top Vertical Lines")

gbot =g(end-119:end,end-119:end);
subplot(3,2,4)
imshow(gbot,[])
title("Bottom Vertical Lines")

g= abs(g);
subplot(3,2,5)
imshow(g,[])
title("Absolute Vertical Lines")

T = max(g(:));
g=g>=T;
subplot(3,2,6)
imshow(T)

title("Threshold Vertical Lines")
```







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Horizontal Line

```
f= imread('circuit.jpg');f= imread('circuit.jpg');
subplot(3,2,1)
imshow(f,[])
title("original Image")

w=[-1 -1 -1; 2 2 2;-1 -1 -1];
g=imfilter(double(f),w); subplot(3,2,2)
imshow(g,[])
title("Horizontal lines")

gtop=g(1:120, 1:120);
subplot(3,2,3)
imshow(gtop,[])
title("Top Horizontal Lines")

gbot =g(end-119:end,end-119:end);
subplot(3,2,4)
imshow(gbot,[])
title("Bottom Horizontal Lines")

g= abs(g);
subplot(3,2,5)
imshow(g,[])
title("Absolute Horizontal Lines")

T = max(g(:));
g=g>=T;
subplot(3,2,6)
imshow(T)

title("Threshold Horizontal Lines")
```