



**deeplearning.ai**

# Convolutional Neural Networks

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More edge  
detection

# Vertical edge detection examples

10	10	10	0	0	0
10	10	10	0	0	0
10	10	10	0	0	0
10	10	10	0	0	0
10	10	10	0	0	0
10	10	10	0	0	0



\*

1	0	-1
1	0	-1
1	0	-1

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0	30	30	0
0	30	30	0
0	30	30	0
0	30	30	0

0	0	0	10	10	10
0	0	0	10	10	10
0	0	0	10	10	10
0	0	0	10	10	10
0	0	0	10	10	10
0	0	0	10	10	10




\*

1	0	-1
1	0	-1
1	0	-1

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0	-	-	0
0	30	30	0
0	-	-	0
0	30	30	0
0	-	-	0
0	30	30	0

# Vertical and Horizontal Edge Detection



1	0	-1
1	0	-1
1	0	-1

Vertical



1	1	1
0	0	0
-1	-1	-1

Horizontal

10	10	10	0	0	0
10	10	10	0	0	0
10	10	10	0	0	0
0	0	0	10	10	10
0	0	0	10	10	10
0	0	0	10	10	10

6x6

\*



1	1	1
0	0	0
-1	-1	-1

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0	0	0	0
30	10	-	-
		10	30
30	10	-	-
0	0	0	0

# Learning to detect edges

1	0	-1
1	0	-1
1	0	-1

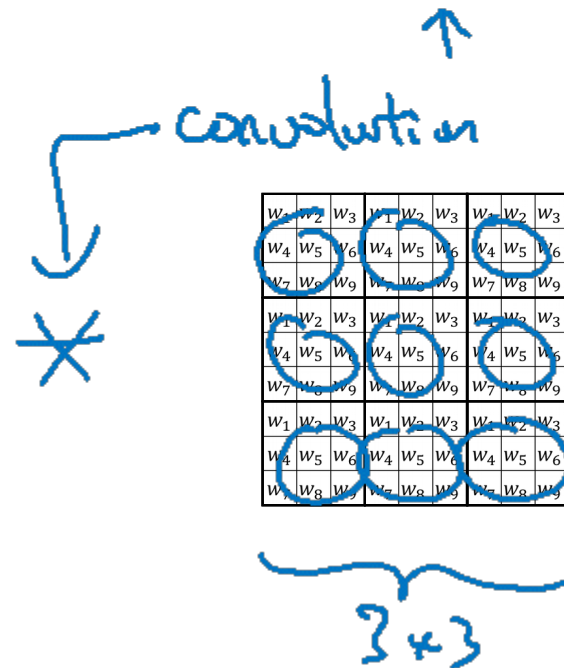
1	0	-1
2	0	-2
1	0	-1

3	0	-3
10	0	-10
3	0	-3

3	0	1	2	7	4
1	5	8	9	3	1
2	7	2	5	1	3
0	1	3	1	7	8
4	2	1	6	2	8
2	4	5	2	3	9

Sobel filter

Scharr filter



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45°  
70°  
73°
