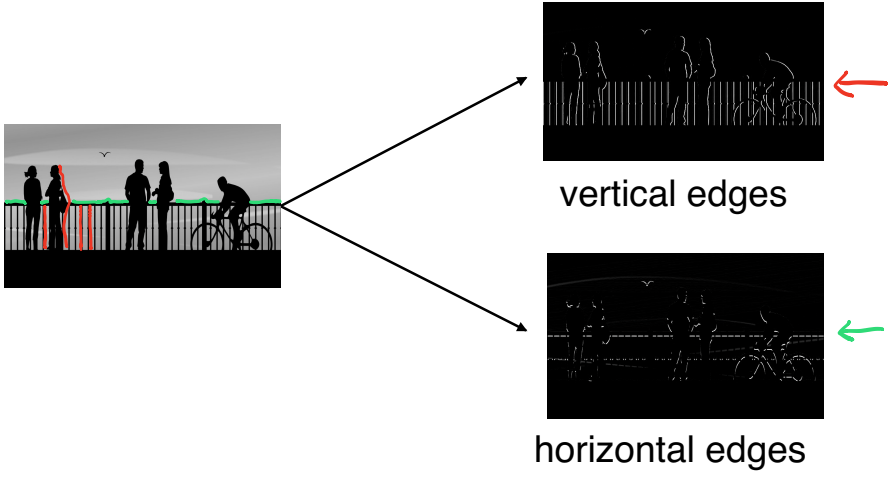
deeplearning.ai

Convolutional Neural Networks

Edge detection example

Computer Vision Problem



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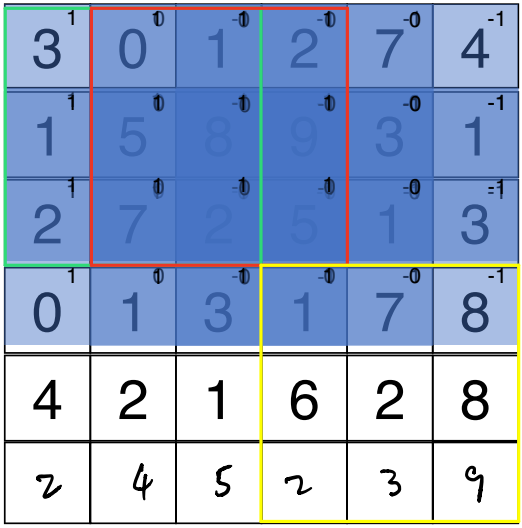
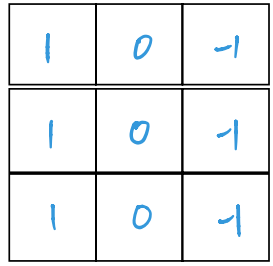
Vertical edge detection

$3\times1 + 1\times1 + 2\times1 + 0\times0 + 5\times0 + 7\times0 + 1\times-1 + 8\times-1 + 2\times-1 = -5$

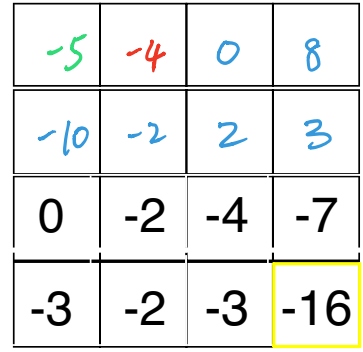


6 x 6 x 1

"Convolution"



3 x 3
filter / kernel



4 x 4

python : Conv - forward
TF : tf.nn.conv2d.
keras : Conv2D

Andrew Ng

Vertical edge detection

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

6 × 6

*

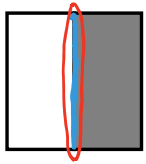
1	0	-1
1	0	-1
1	0	-1

3×3

=

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

4×4



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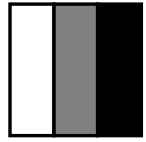

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