

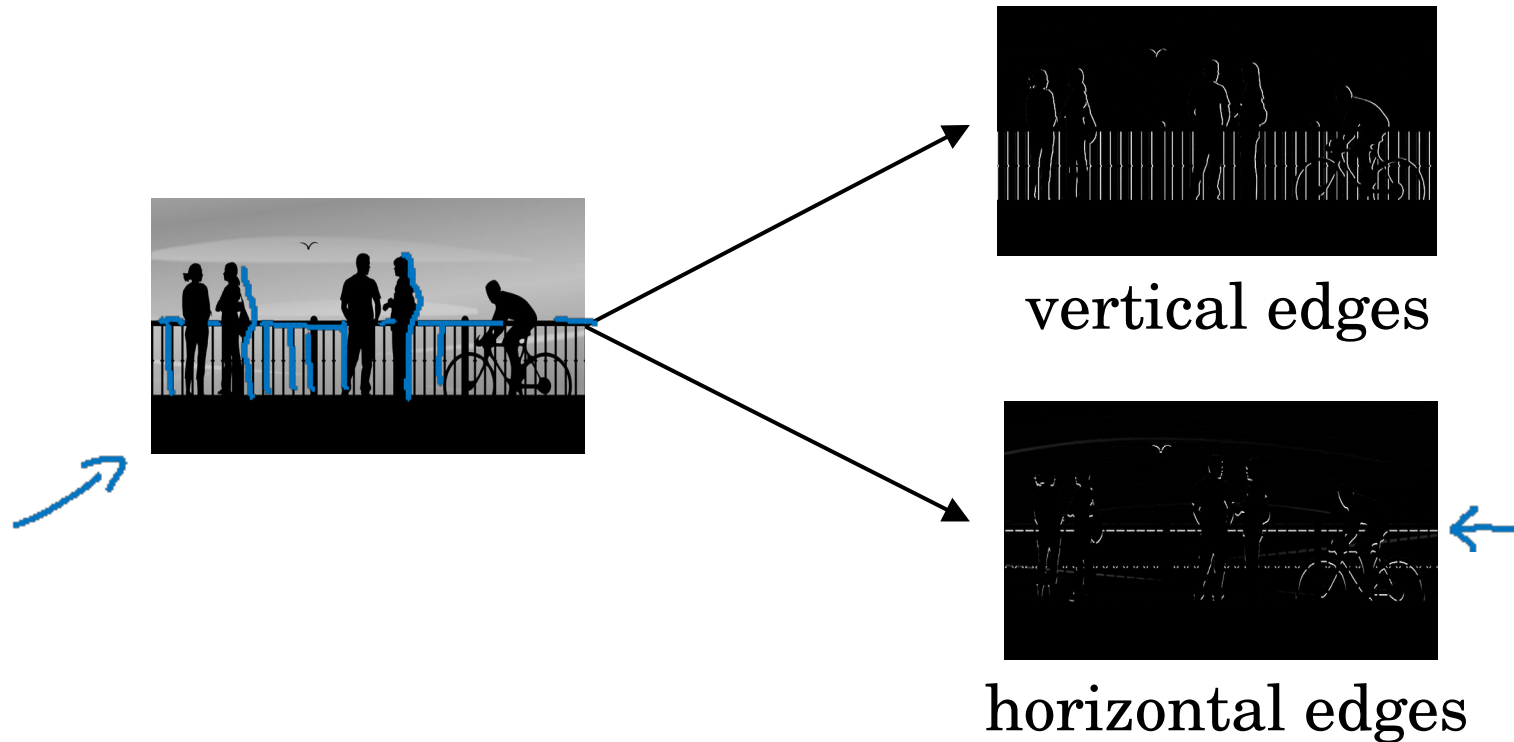
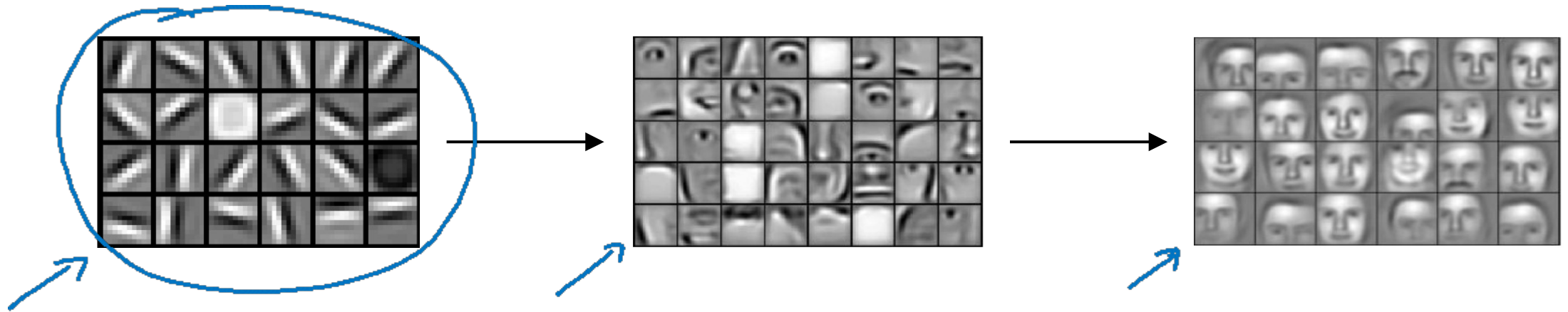


deeplearning.ai

Convolutional Neural Networks

Edge detection
example

Computer Vision Problem

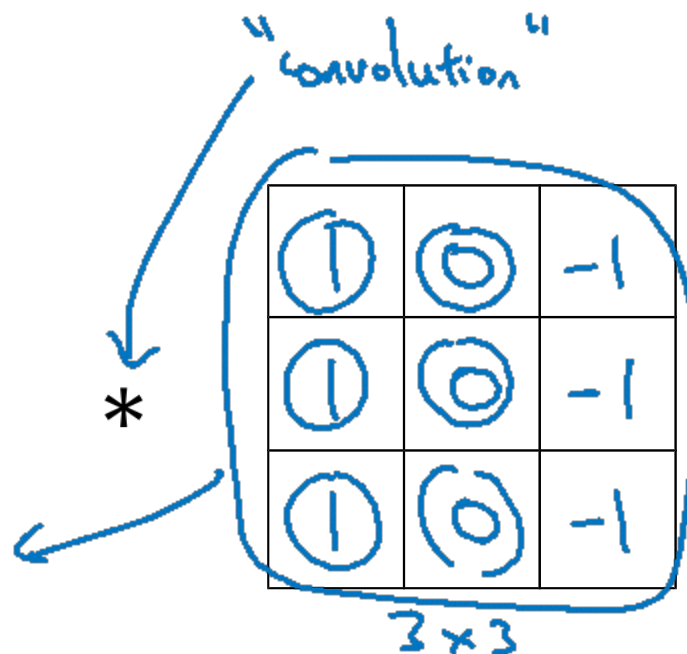


Vertical edge detection

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

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

6x6



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-5	-4	0	8
-10	-2	2	3
0		-4	-7
	-2		
-3	-2	-3	16

Vertical edge detection

1	1	1	0	0	0
0	0	0	0	0	0
1	1	1	0	0	0
0	0	0	0	0	0
1	1	1	0	0	0
0	0	0	1	0	0
1	1	1	0	0	0
0	0	0	0	0	0
1	1	0	0	0	0
0	0	0	0	0	0

6x6

*

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

3x3

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0	3	3	0
0	3	3	0
0	3	3	0
0	3	3	0
0	3	3	0

4x4

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