

1	0	0	0	0	0	0
2	0	1	2	3	4	0
3	0	2	1			0
4	0	3				0
5	0	4				
6	0	0	0	0	0	0
	1	2	3	4	5	6

image $I_{4 \times 4}$

matrix $\tilde{I}_{6 \times 6}$

	1	2	3
1			
2		1	
3			

kernel
 $K_{3 \times 3}$

matrix
index
(Not Python)

	1	2	3	4
1	1			
2				
3				
4				

convolution $C_{4 \times 4}$

$$C_{11} = I_{1,1}K_{2,2} + I_{1,0}K_{2,1} + I_{1,2}K_{2,3} \\ + I_{0,1}K_{1,2} + I_{0,0}K_{1,1} + I_{0,2}K_{1,3} \\ + I_{2,1}K_{3,2} + I_{2,0}K_{3,1} + I_{2,2}K_{3,3}$$

$$= \tilde{I}_{11}K_{11} + \tilde{I}_{12}K_{12} + \tilde{I}_{13}K_{13} + \tilde{I}_{21}K_{21} + \tilde{I}_{22}K_{22} + \tilde{I}_{23}K_{23} \\ + \tilde{I}_{31}K_{31} + \tilde{I}_{32}K_{32} + \tilde{I}_{33}K_{33}$$