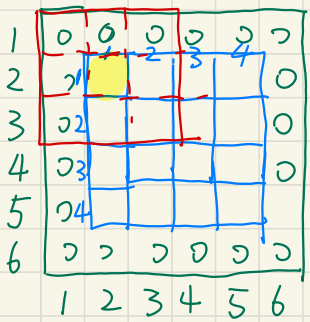
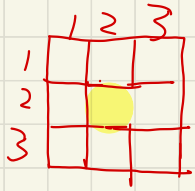


image $I_{4\times4}$

matrix $\tilde{I}_{6\times6}$



kernel $K_{3\times3}$

matrix index (Not Python)

convolution $C_{4\times4}$

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

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