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Class E

Latihan Soal konvolusi 2D

$x=(n_1, n_2)$

$$\begin{vmatrix} 1 & 4 & 1 \\ 2 & 5 & 3 \end{vmatrix}$$

0

$**$

$h=(n_1, n_2)$

$$\begin{vmatrix} 1 & 1 \\ 1 & -1 \end{vmatrix}$$

konvolusikan Sinyal diatas

$$x=\begin{vmatrix} 1 & 4 & 1 \\ 2 & 5 & 3 \end{vmatrix} \quad h=\begin{vmatrix} 1 & 1 \\ 1 & -1 \end{vmatrix}$$

$x = 2 \times 3$ matrix

$h = 2 \times 2$ matrix

Output will be matrix A

A height = X height − h height + 1

A with = X with − h width + 1

A height = 2 − 2 + 1 = 1

A width = 3 − 2 + 1 = 2

Output A will be 1 X 2 matrix

Perform convolution to get value of A

$A(0,0) = (1 \cdot 1) + (1 \cdot 2) + (1 \cdot 4) + (1 \cdot 5) + (1 \cdot 1) + (1 \cdot 3)$

$= 16$

$A(0,1) = (1 \cdot 1) + (1 \cdot -2) + (1 \cdot 4) + (1 \cdot -5) + (1 \cdot 1) + (1 \cdot -3)$

$= -4$

$A = |16 \quad -4|$