

Input image

I_{00}	I_{01}	I_{02}	\cdots		I_{0N}
I_{10}	I_{11}	I_{12}	\cdots		I_{1N}
I_{20}	I_{21}	I_{22}	\cdots		I_{2N}
\vdots					
I_{M0}	I_{M1}	I_{M2}	\cdots		I_{MN}

Filtered image

G_{00}	G_{01}	\cdots	$G_{0(N-1)}$
G_{10}	G_{11}	\cdots	$G_{1(N-1)}$
\vdots			
$G_{(M-1)0}$	\cdots		$G_{(M-1)(N-1)}$

$$\mathbf{T}[\mathbf{I}(\mathbf{x}, \mathbf{y})]$$

Software layer
Hardware layer

I'_{00}	I'_{01}	I'_{02}	\cdots		I'_{0N}
I'_{10}	I'_{11}	I'_{12}	\cdots		I'_{1N}
I'_{20}	I'_{21}	I'_{22}	\cdots		I'_{2N}
\vdots					
I'_{M0}	I'_{M1}	I'_{M2}	\cdots		I'_{MN}

G_{00}	G_{01}	\cdots	$G_{0(N-1)}$
G_{10}	G_{11}	\cdots	$G_{1(N-1)}$
\vdots			
$G_{(M-1)0}$	\cdots		$G_{(M-1)(N-1)}$

K'_{00}	K'_{01}	K'_{02}
K'_{10}	K'_{11}	K'_{12}
K'_{20}	K'_{21}	K'_{22}

$$\mathbf{T}^{-1}[\mathbf{I}'(\mathbf{x}, \mathbf{y}) * \mathbf{K}'(\mathbf{x}, \mathbf{y})]$$

kernel