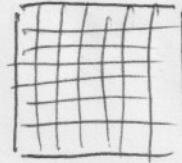


5.1

7x7 box filter

ops per pixel

Naive implementation



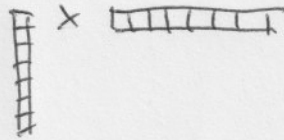
49 mult/add

3x 3x3 filters



3x9 = 27 "

single separable



14 "

5.2

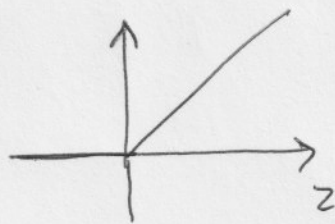
1D signal $F(\omega) = \int_{-\infty}^{\infty} f(x) e^{-j\omega x} dx$

$$e^{-j\omega x} = \cos \omega x - j \sin \omega x$$

2D $F(\omega_1, \omega_2) = \iint f(x, y) e^{-j(\omega_1 x + \omega_2 y)} dx dy$

$$y = Ax$$

$$y = \text{relu}(Ax)$$



$$\text{relu}(z) = \max(0, z)$$