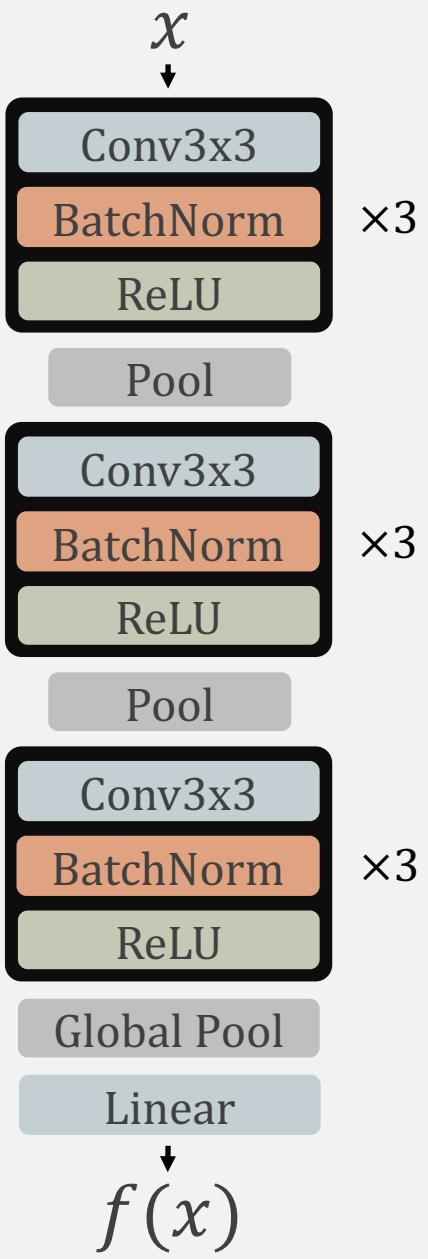
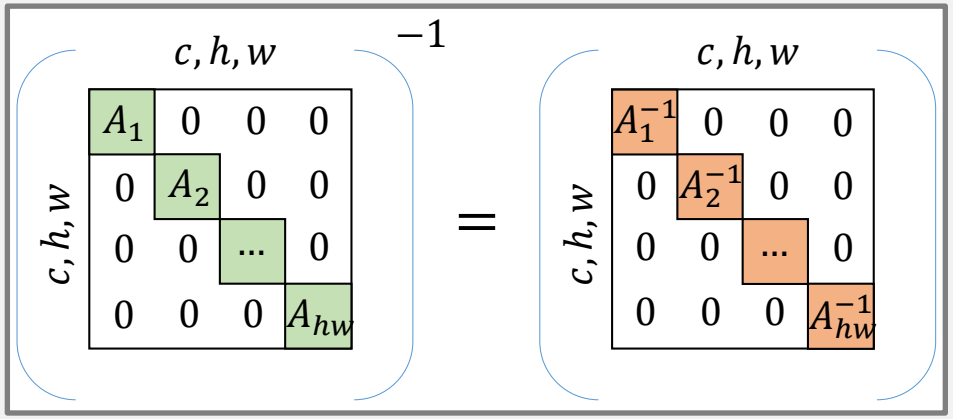
INVERTIBLE CONVNETS



f^{-1} ?

Conv3x3 $^{-1}$



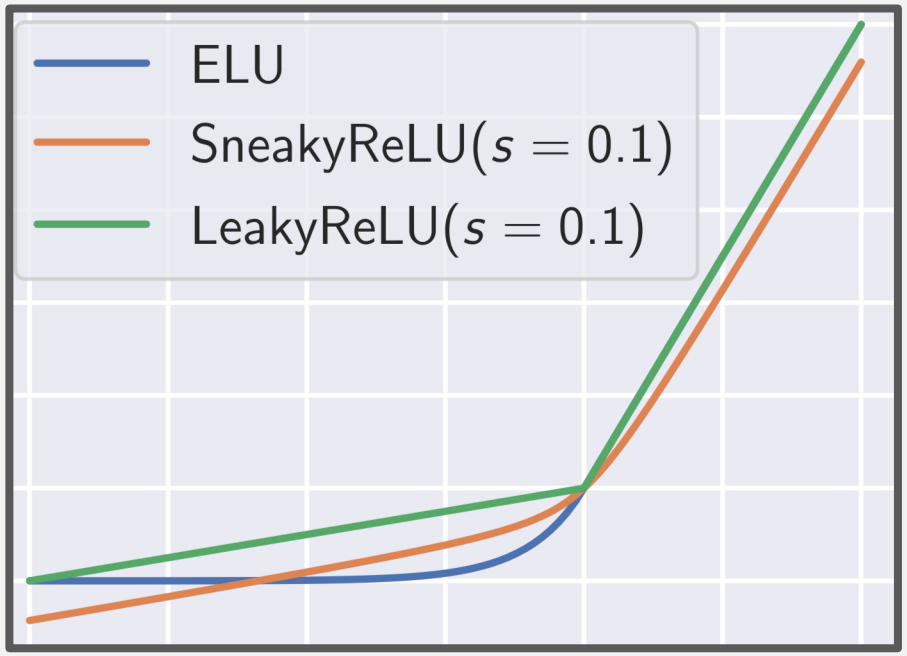
$$Conv_W(x)_k = \sum_i F^{-1}\left(F(W)^*_{ki} \circ F(x_i)\right)$$

$$Conv_W^{-1}(y)_k = \sum_i F^{-1}\left((F(W)^*)^{-1}_{ki} \circ F(y_i)\right)$$

$$\log|\det(Conv_W)| = \sum_{h,w} \log|\det(F(W)^*_{:,:,h,w})|$$

ReLU → SneakyReLU

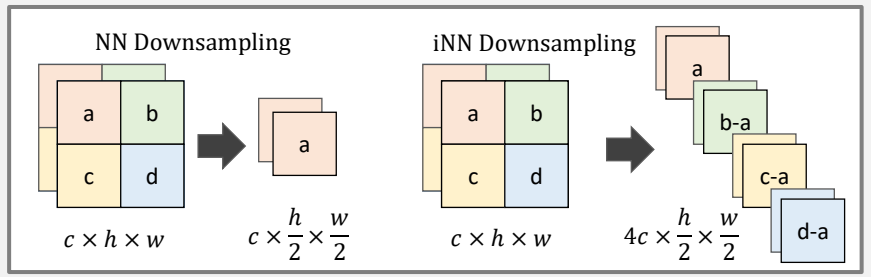
$$\sigma(x) = \left(x + \alpha\left(\sqrt{1+x^2} - 1\right)\right)/(1+\alpha)$$



+ Bijective

+ Smooth

Pool → iDS



Fully Convolutional Flow

x

iConv3x3, 3

SneakyReLU

iDS

iConv3x3, 12

SneakyReLU

iDS

iConv3x3, 48

SneakyReLU

iDS

iConv3x3, 48

SneakyReLU

iConv3x3,196

$z = f(x)$