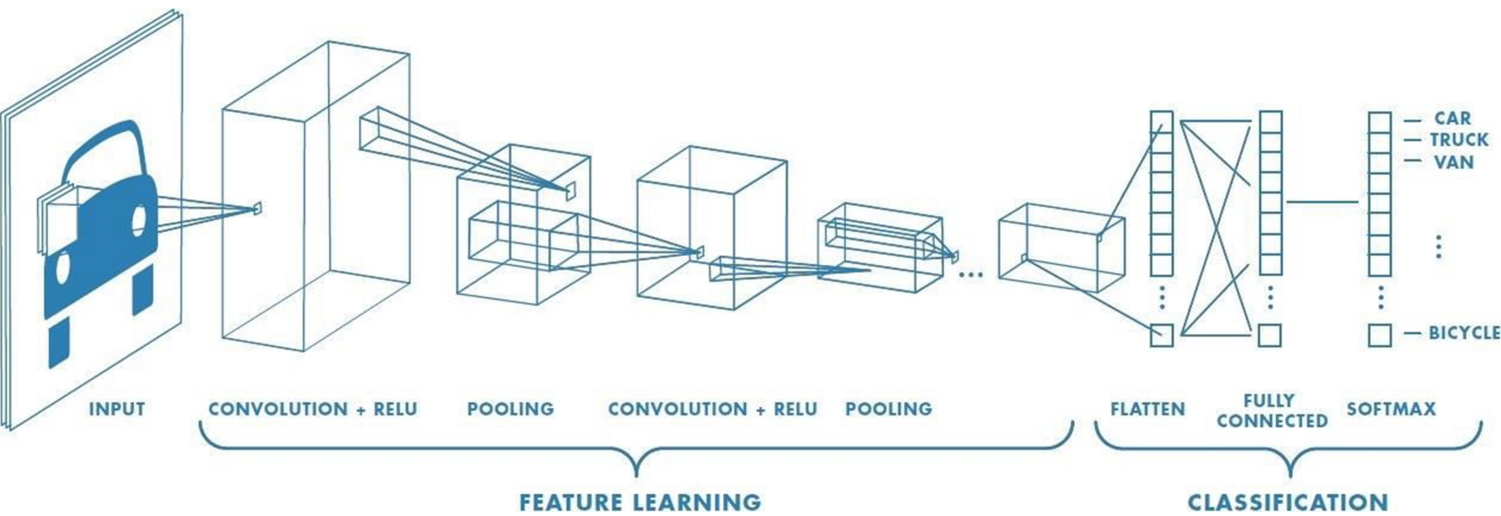
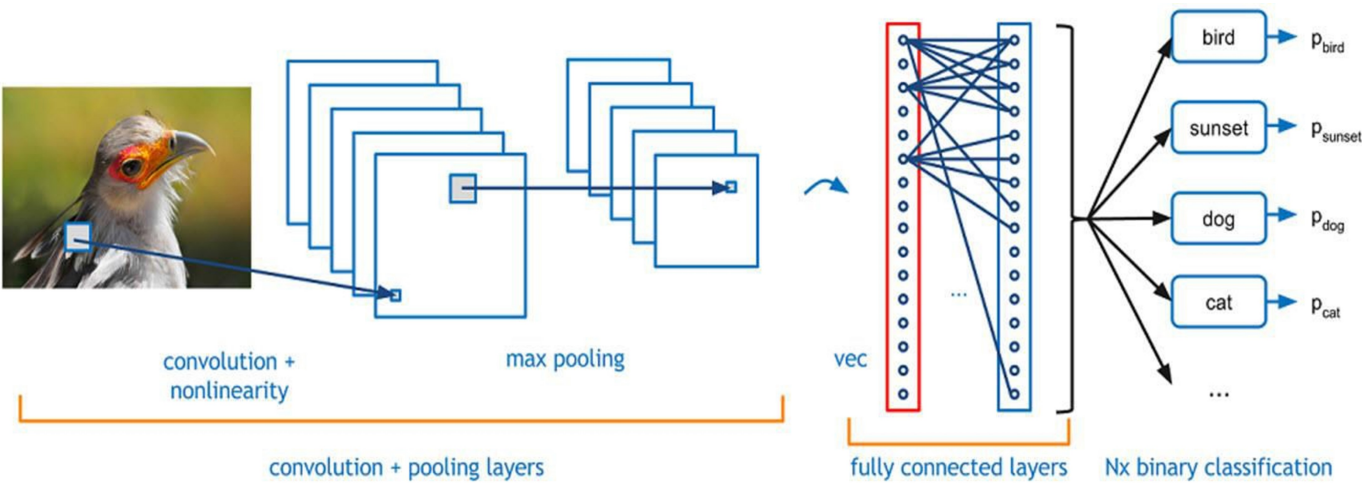
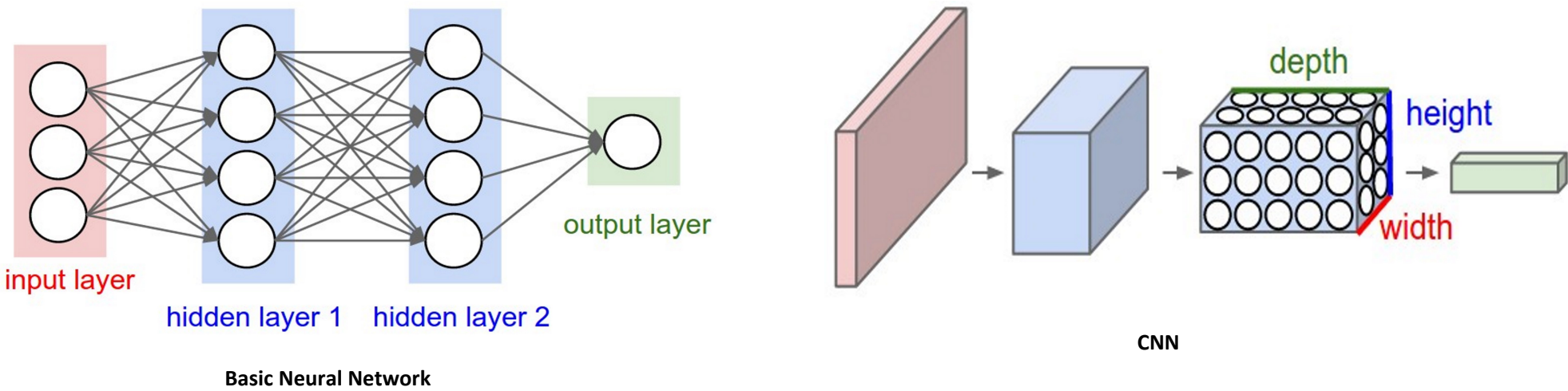


Convolutional Neural Networks

12 May 2018 15:10

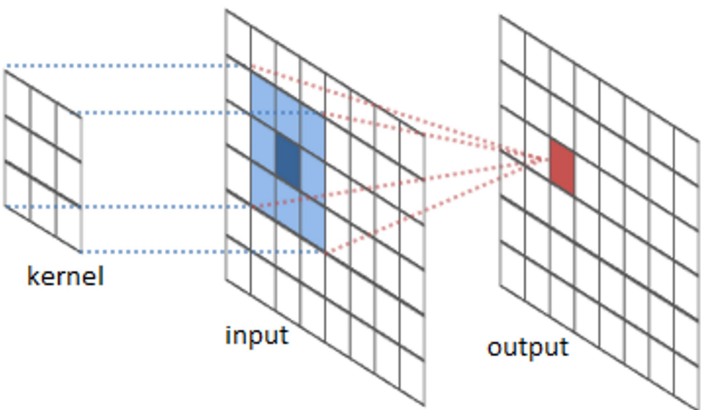
Architecture of CNN compared to Normal Neural Network



Convolution

We can think of images as two-dimensional functions. Many important image transformations are convolutions where you convolve the image function with a very small, local function called a “kernel.”

From <http://colah.github.io/posts/2014-07-Understanding-Convolutions/>



Layers

Input Layer:

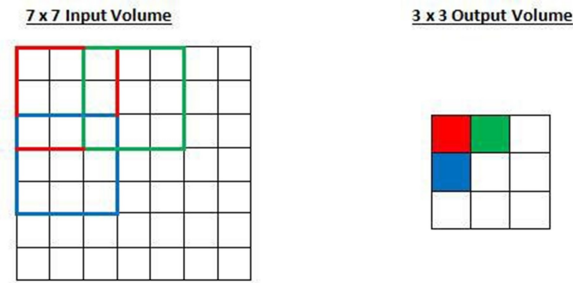
Input Tensor Size : [batch, in height, in width, in channels]

Convolution Layer:

Filter size = [filter height, filter width, in channels, out channels]

Depth = out channels = Number of Filters

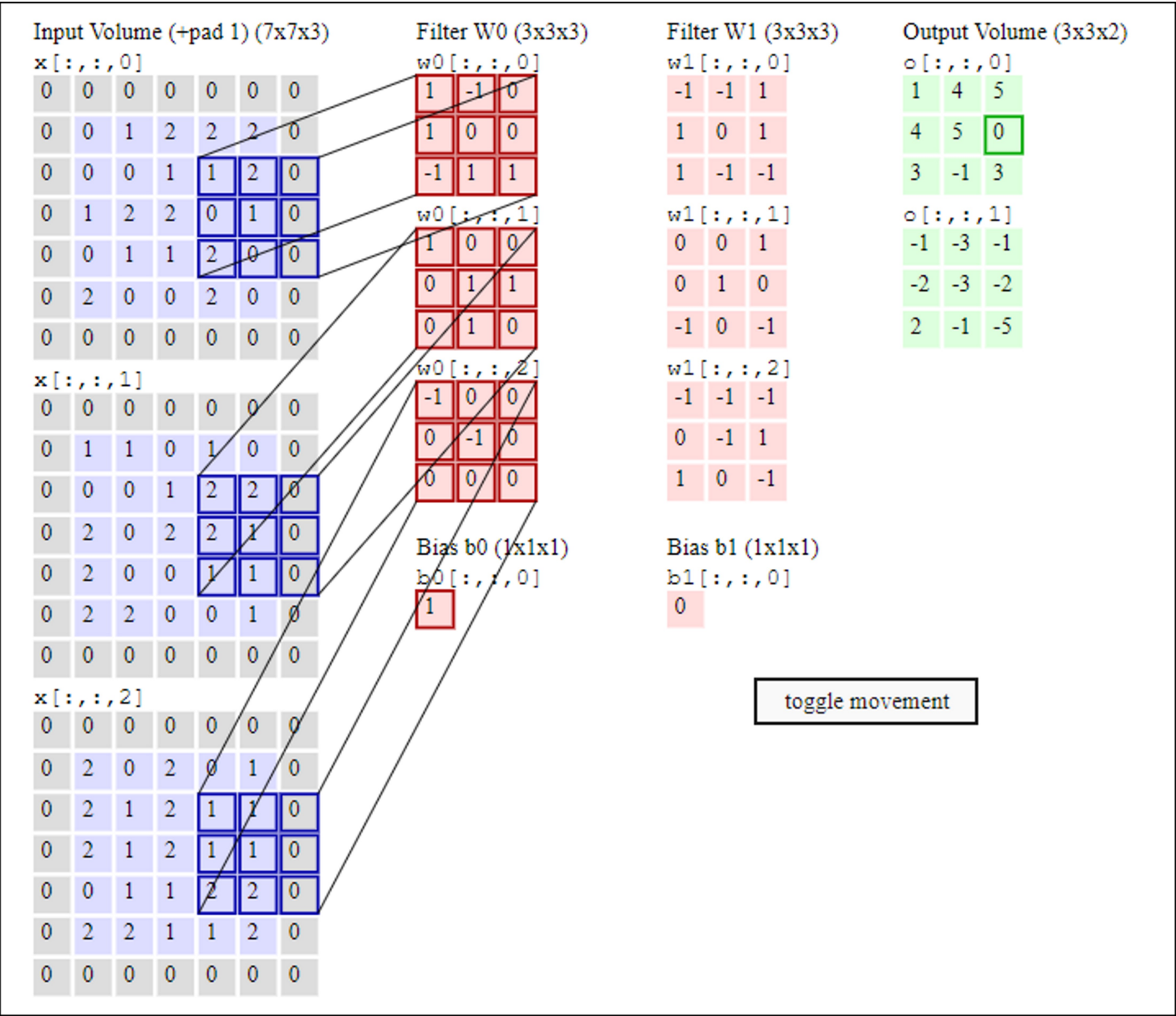
Stride



Zero-Padding:

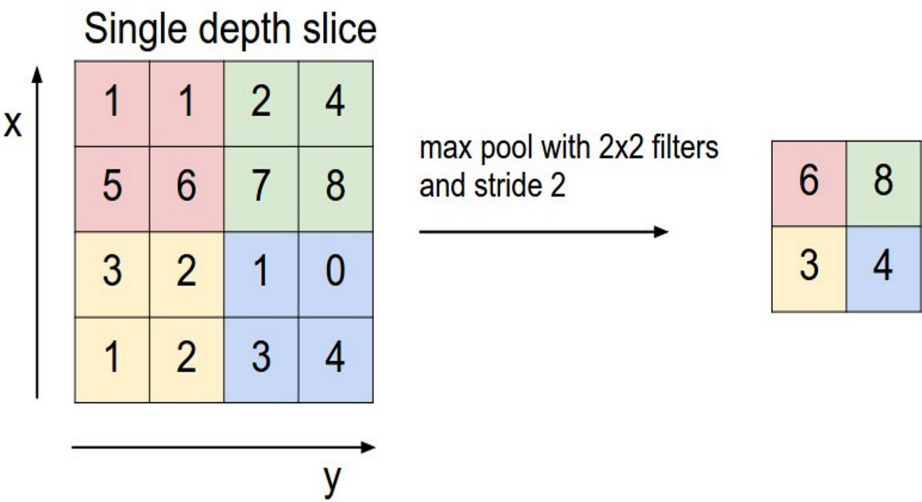
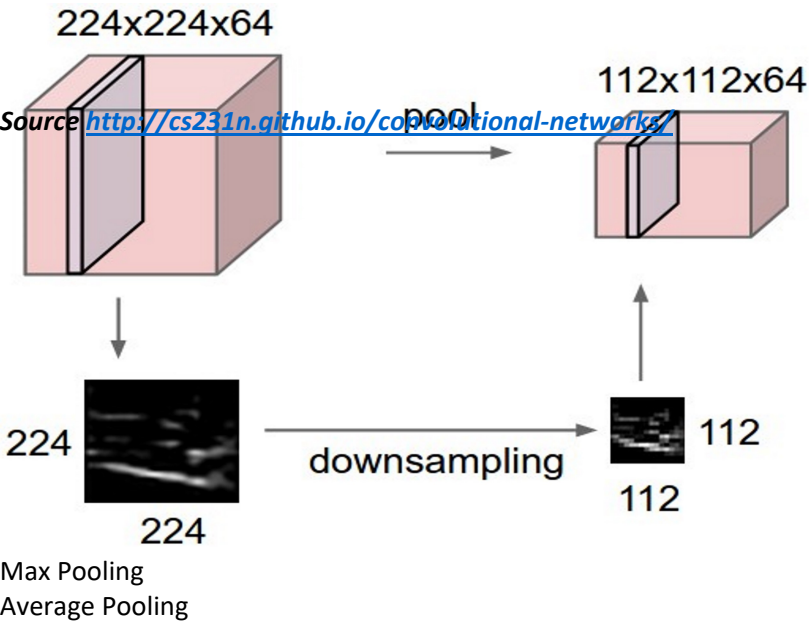
Parameter Sharing:

Convolution Layer Demo:



Pooling Layer:

spatial size of the representation to reduce the amount of parameters and computation in the network, and hence to also control over fitting



Fully Connected layer:

Dense Layer
RELU

Layer Pattern

INPUT -> [[CONV -> RELU]*N -> POOL?]*M -> [FC -> RELU]*K -> FC