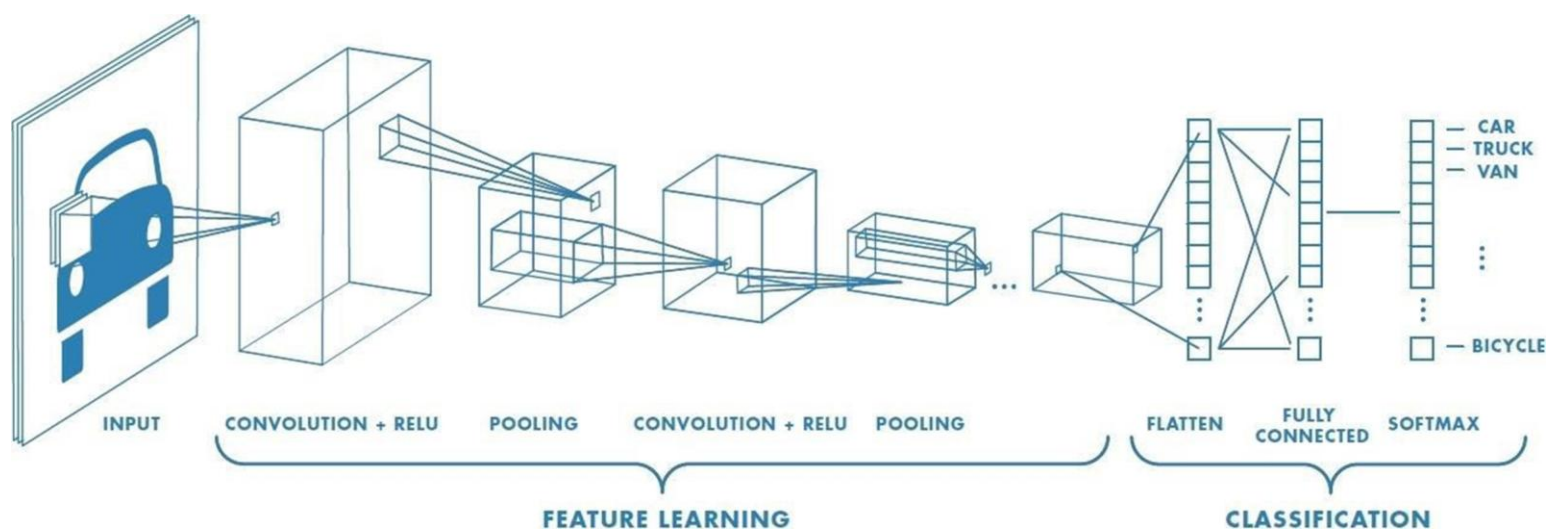# Convolutional Neural Networks

12 May 2018   15:10
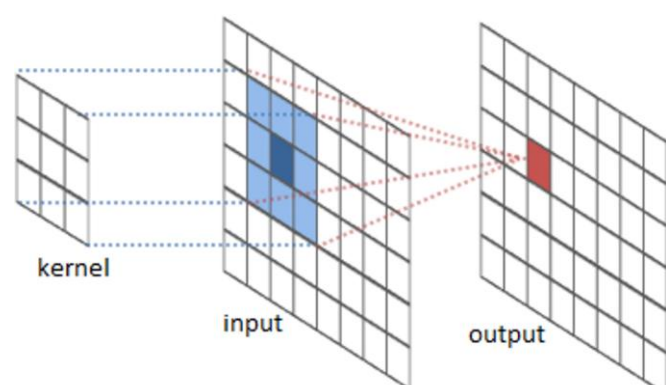
Architecture of CNN compared to Normal Neural Network

Basic Neural Network

CNN
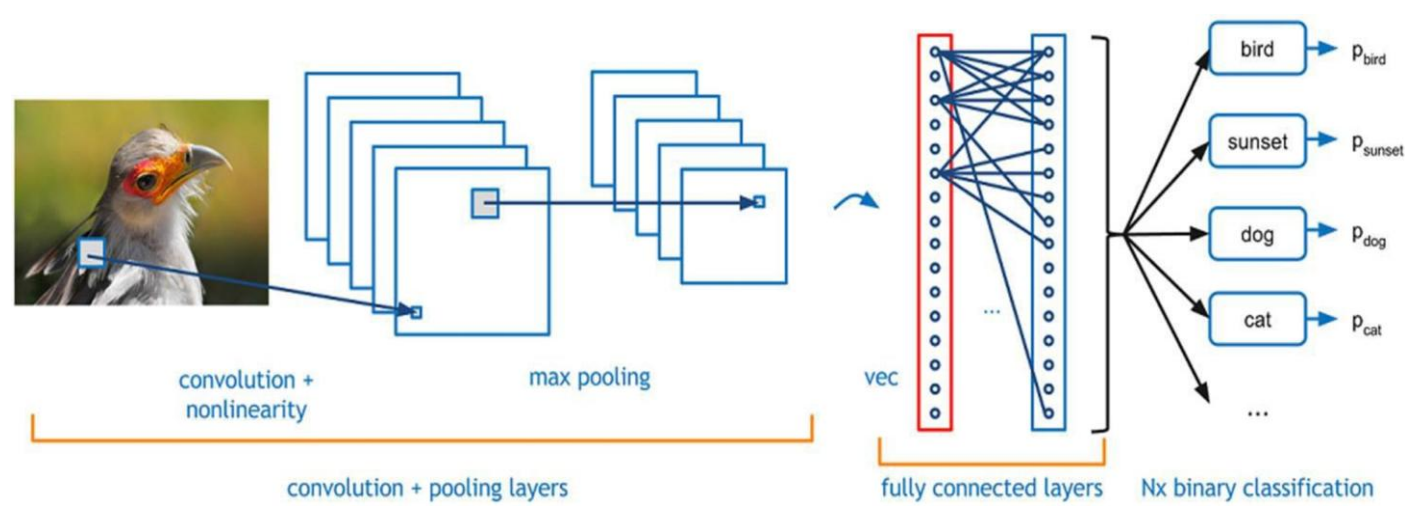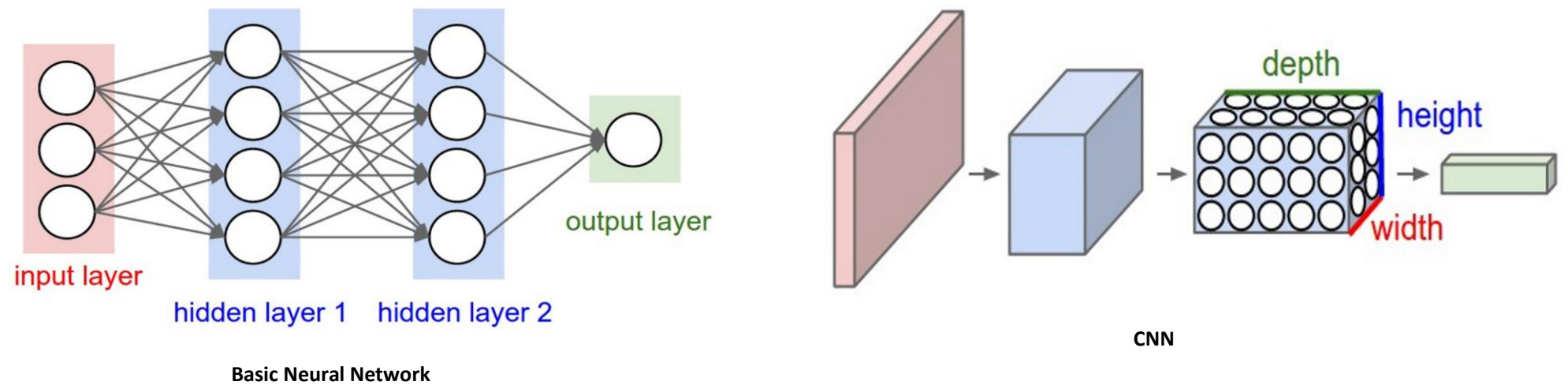
Convolution

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:ffcolah.github.iofpostsf2014-07-Understanding-Convolutionsf>

Layers

Input Layer:

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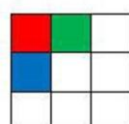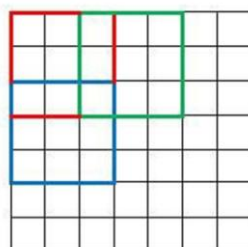
Convolution Layer:

Filter size = [filter height, filter width, in channels, out channels]
Depth = out channels = Number of Filters
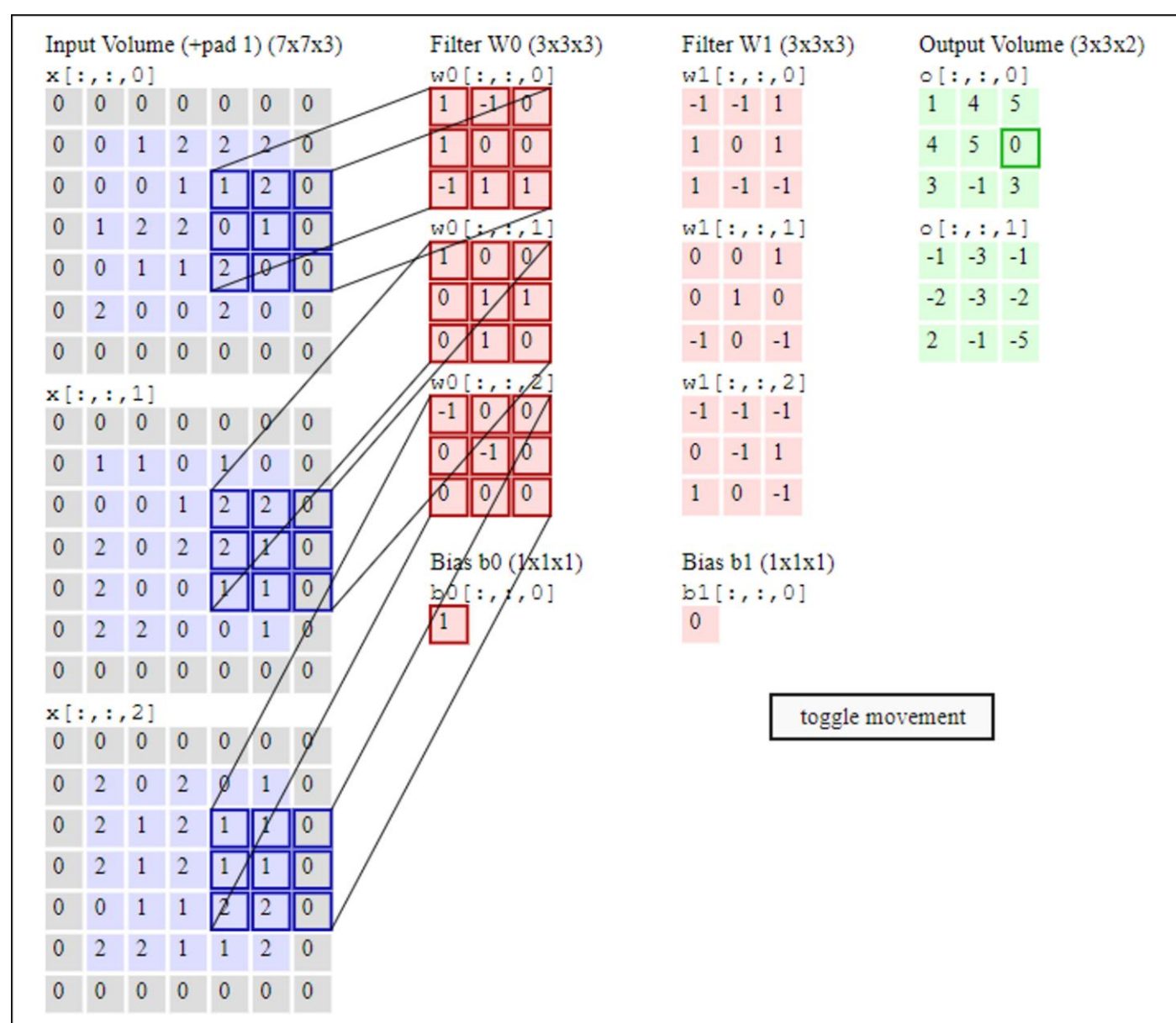**Stride**

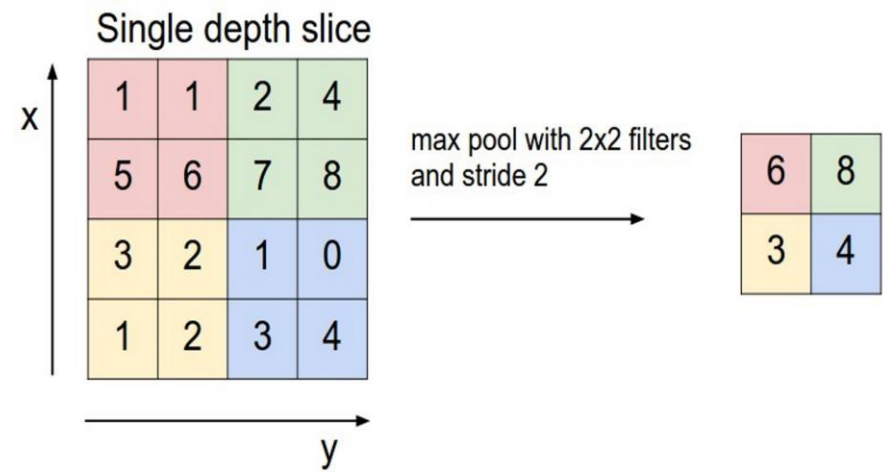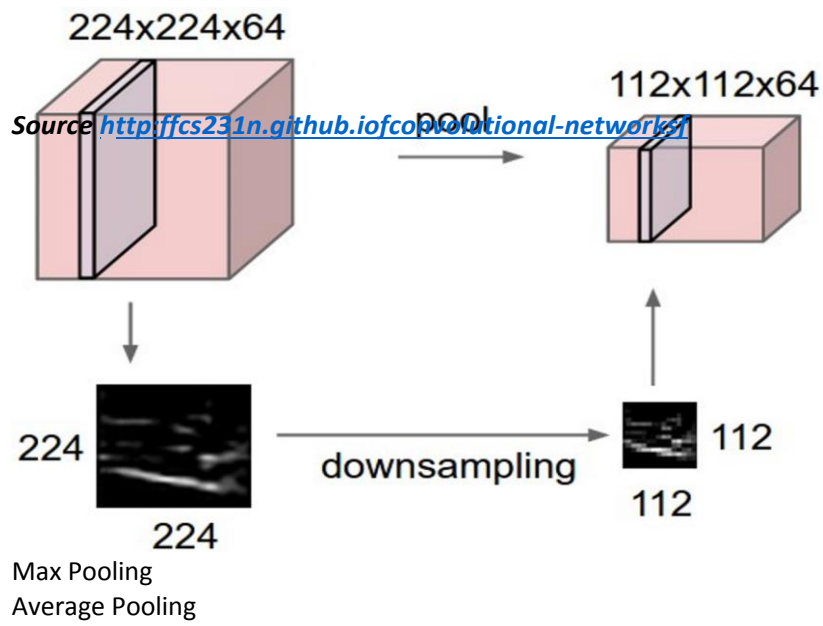7 x 7 Input Volume   3 x 3 Output Volume

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

Source http://cs231n.github.io/convolutional-networks

Max Pooling
Average Pooling

Fully Connected layer:

Dense Layer
RELU

Layer Pattern

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