神经网络第十一章

2022年7月22日 星期五 16:20

Why look at case study?

LeNet-5

AlexNet

VGG (VGG-16

ResNet (152)

Classic Networks

32×32×1

在使用卷积时

n_H, n_W, n_C

conv pool conv pool fc fc output

论文中: sigmoid / tanh 比 Relu 更多

(略)

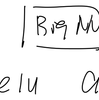
ResNets (残差网络) "short cut"

$a^{[l]} \rightarrow$ Linear $\rightarrow$ Relu $\xrightarrow{a^{[l+1]}}$ Linear $\rightarrow$ Relu $\rightarrow a^{[l+2]}$

$a^{[l]} \rightarrow$  $\xrightarrow{a^{[l+1]}}$  $\rightarrow a^{[l+2]}$

主层的主路径.

$x \rightarrow$  $\rightarrow a^{[l]}$ short cut

$x \rightarrow$  $\xrightarrow{a^{[l]}}$  $\rightarrow$  $\rightarrow a^{[l+2]}$

Relu $a \geq 0$

$$a^{[l+2]} = g(z^{[l+2]} + a^{[l]})$$

$$= g(w^{[l+2]} a^{[l+1]} + b^{[l+2]} + a^{[l]})$$

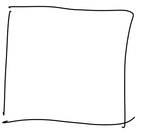
if $w^{[l+2]} = 0$, $b^{[l+2]} = 0$

学习简单,更有利于提升

Network in Networks and 1×1 Convolutions

1×1 卷积

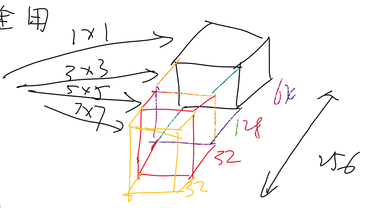
$6 \times 6 \times 1 * 1 \times 1 = 6 \times 6$

$6 \times 6 \times 32 * 1 \times 1 \times 32 \xrightarrow{\text{Relu}}$ 

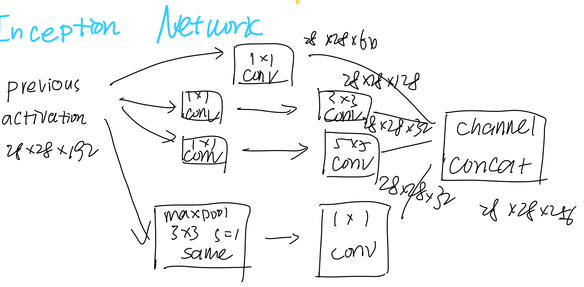
$6 \times 6 \times$ #filters

Inception Network Motivation

卷积+池化全用

$28 \times 28 \times 192$ 

Inception Network



Mobile Net

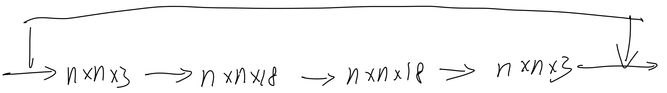
normal Convolution

$6 \times 6 \times 3 * 3 \times 3 \times 3 \rightarrow 4 \times 4 \times n_c$

$6 \times 6 \times 3 * 3 \times 3 \times 3$ (Depthwise) $\times 1 \times 1 \times 3$ (pointwise)

MobileNet Architecture

mobelNet v2 Buttle Neck



Efficient Net