

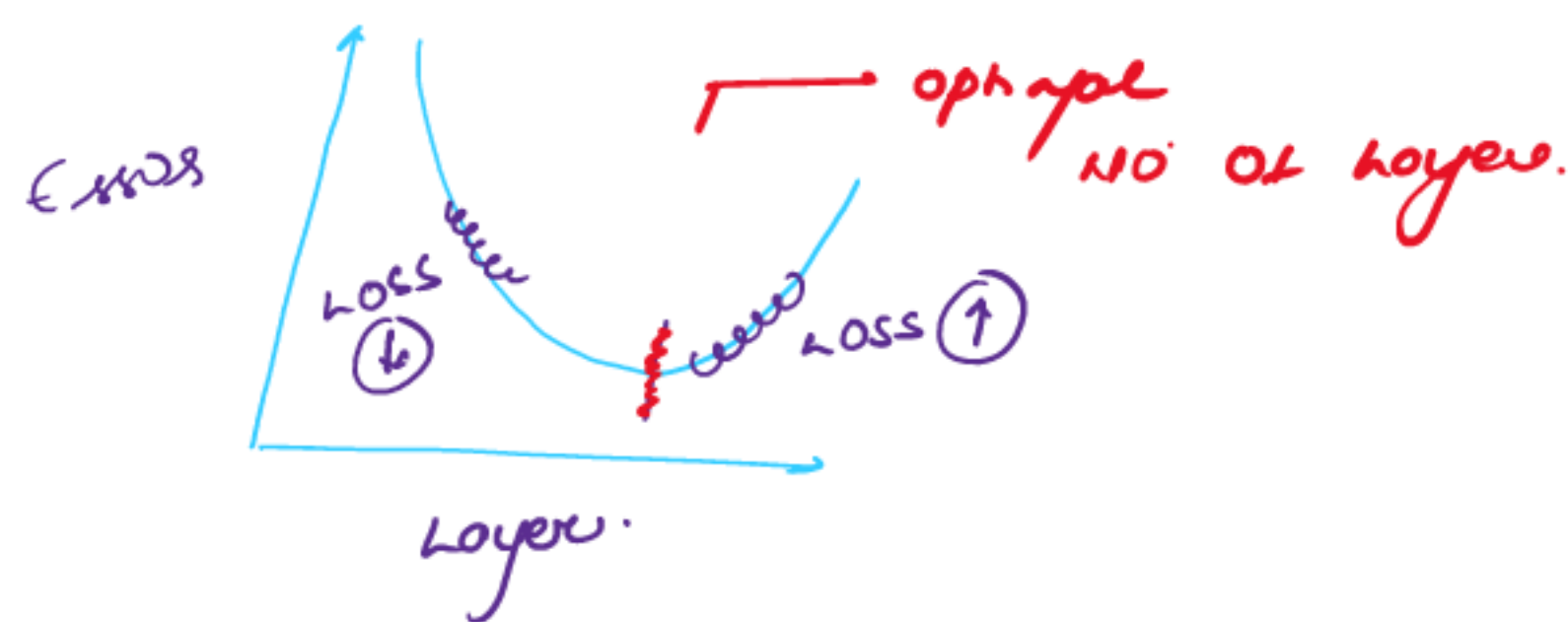
RESNET- Architecture

07 November 2023 07:10

Alex net = 8 layers.
vgg 16 = 16 layers.
vgg 19 = 19 layers.
Inception v3 = 250 layers.

Core fundamental structure remains the same.

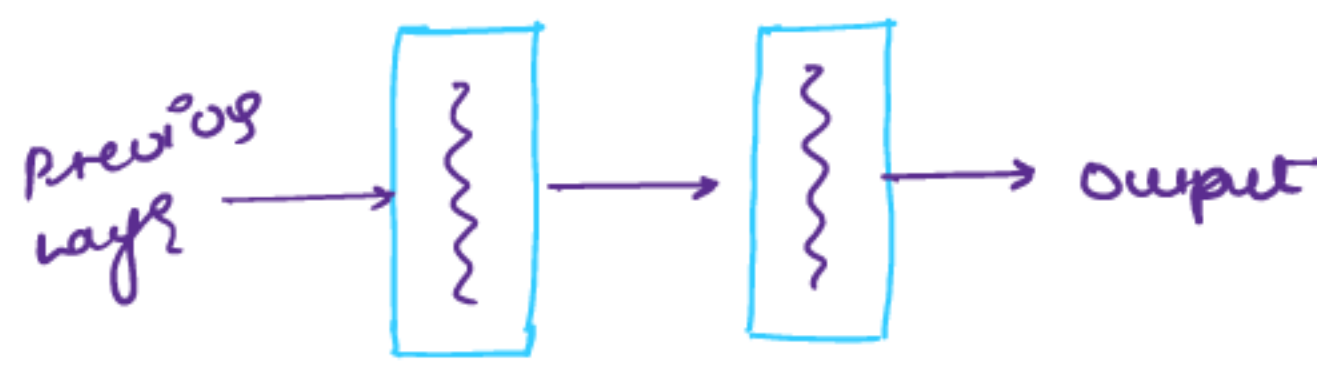
- convolution
- pooling
- batch
- output



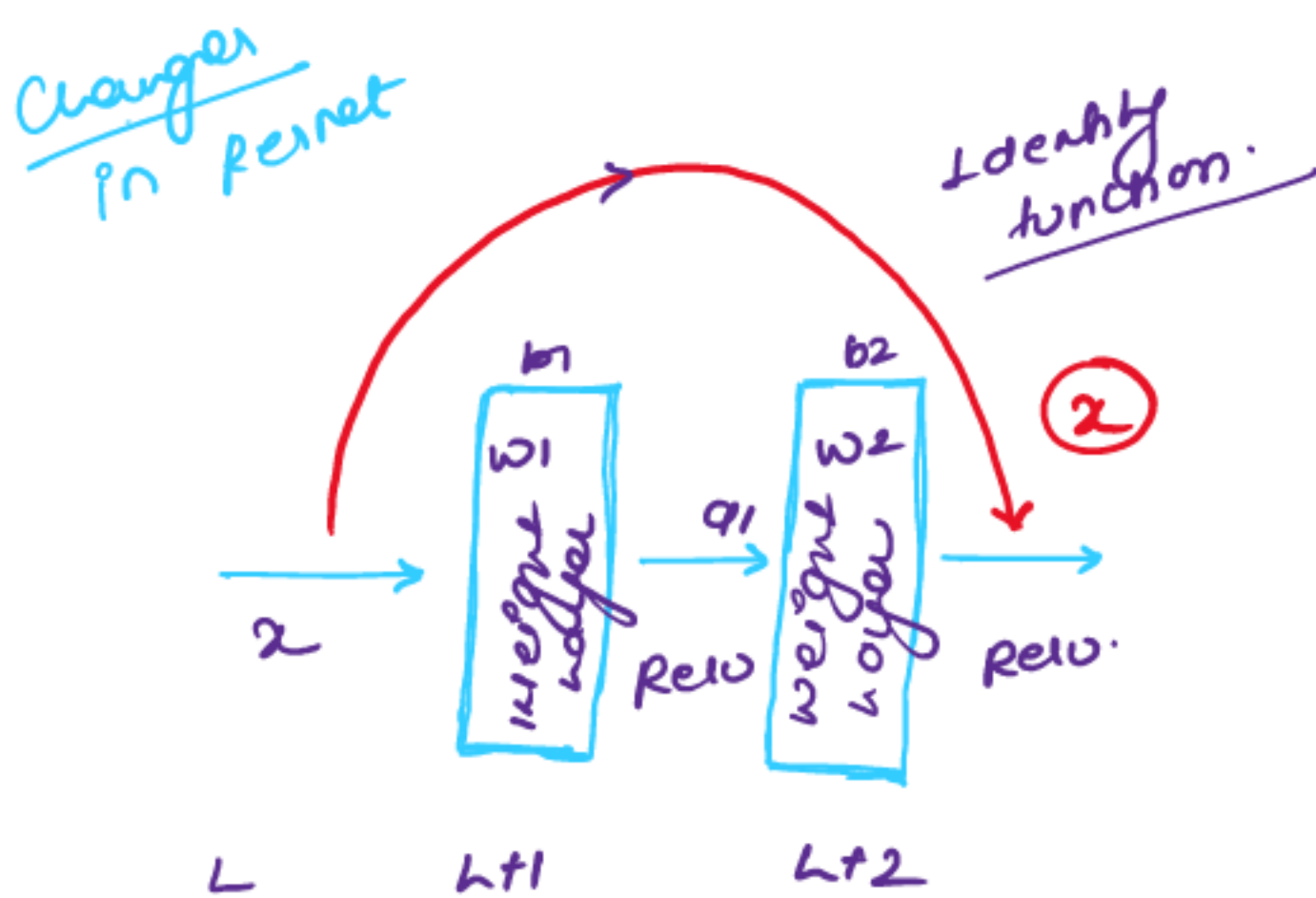
vgg 16 16 layer.
lower training acc
higher training accuracy
cross (7)

Vanishing gradient Initial layer input

ResNET Residual network



l l+1 l+2



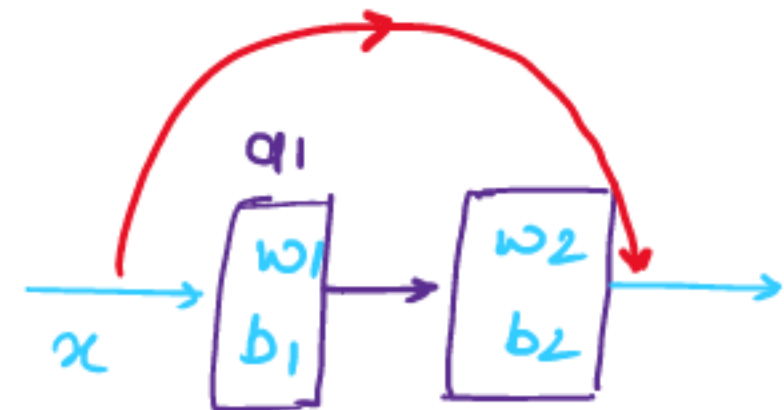
$$\text{Result} = x \times w_1 + b_1$$

$$\text{Relu}(\text{Result}) \Rightarrow a_1$$

$$\text{Result} = a_1 \times w_2 + b_2 + x$$

$$= \text{Relu}(\text{Result})$$

$$= a_2$$



$$\text{Rel}(\text{Result}) \Rightarrow a_1$$

$$a_1 \times w_2 + b_2 + x$$

$$\Rightarrow \text{Relu}(a_1 \times w_2 + b_2 + x)$$

$$= a_2$$

Res net 34 layer
10 layer
101 layer
152 layer

Identity Non Identity

By adding skip connection
Model accuracy increased
though the depth of model increases.

ImageNet challenge. COCO.

Resnet 50 layer

Input

1x1x64
3x3x64
1x1x256 } x 3

1x1x128
3x3x128
1x1x512 } x 4

1x1x256
3x3x256
1x1x1024 } x 6

1x1x512
3x3x512
1x1x2048 } x 3

output

$$1 + 9 + 12 + 18 + 9 + 1$$

$$= 50$$