Today's Agenda

1) VGG16 Practical
2) Inception OR GoogleNet

Recap

VGG16 16/19

2014

(3×3)

- (1) less parameters
- (2) Hardware Optimized

7×7 → (3×3)

5×5 → (3×3)+(3×3)

Cons of VGG16

1) Dense Layer (does not Spatial Information)
2) Parameters are very high

SMOTE

Code Implementation

VGG16 Train

(1) Scratch (L/L)

(2) Pretrain (Partial Training)

Deep learning Framework

(1) Tensorflow

(2) PyTorch

Data Augmentation

- Process of increasing the dataset
- Multiple Types of Transformation on the ORIGINAL DATA

Apply → (1) RUNTIME → ale cannot see

(2) PRE RUNTIME

10 img → 1000 image

1010

No of filters used = No of output channels

How the dimensions get affected in MP ?

Dim :- $h/2$, $w/2$, c → not affected

Information Loss :- 75% OR 3/4

4 values → 1 value

(2,2)

9	4
1	7

→ 9

(3,3)

1	2	4
1	7	0
2	1	3

→ 7

Info loss :- 88.88% OR 8/9

Pre Trained → Transfer learning → Faster Training

1) Model trained on some other data

Model Weights → Frozen State (No Training)

→ Unfrozen State (Training)

Net
- L1 ✓
- L2 ✓
- L3 ✓
- L4

Other data & Current data

Similarity

S < L1, L2 > Frozen

I < L3, L4 > Frozen

I < L5, L6 > Unfrozen / Freeze layer

Con

Start :- Low level

* Intermediate :- Mid level

End :- High level

Structure for Image Classification

Data Spliting

- ✓ Train [70, 15, 15]
- ✓ Validation [80, 10, 10]
- Test [60, 20, 20] Strict

Structure