

# Agenda

## 1) Inception (Google Net)

- ↳ Theory
- ↳ Practical

VGG  
↓  
2014

Google Net

Runway

VGG Simplicity →

GoogleNet / Image Classification

Object localization

VGG

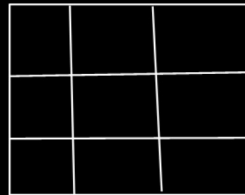
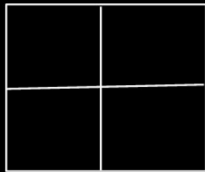
Params

Millions

1x1

- ↳ Pointwise Conv
- ↳ Dimensionality Reduction

3/4



8/9

5 layers

0.007

→ Random gradient value

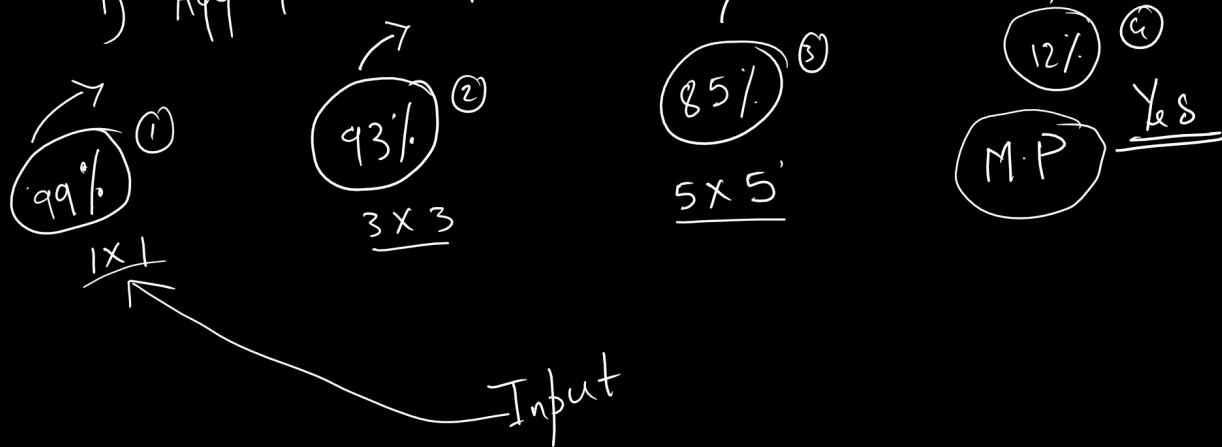
10 layer  
0.00007

30 layer

0. 0 0 0 0 0 0 0 0 0 931

Why inception block?

1) Aggregation of different types of features



$C_1$   $3 \times 3$   
 $C_2$   $3 \times 3$   
 $C_3$   $3 \times 3$   
 $C_4$   
 $C_5$   $3 \times 3$

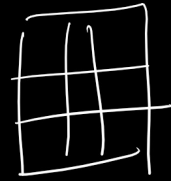
Small  
mid  
High  
High level

Flatter  
FC

$$= 7 \times 7$$

$$= (1 \times 7) \times (7 \times 1)$$

= Horizontal / Vertical

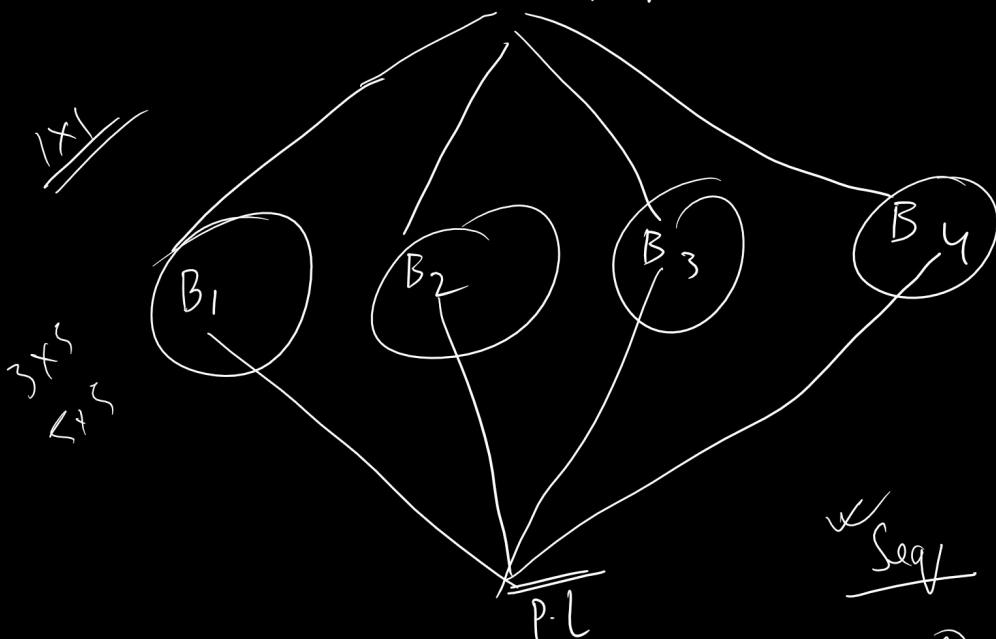


Trained in  
less computational  
Power



$$\begin{matrix} 3 \times 3 \\ (1 \times 3) \quad (3 \times 1) \end{matrix}$$

Merged / Concatenated



$$\begin{matrix} \checkmark \text{Seq} & + & \checkmark \text{Fun} \\ \underline{1000} & & \underline{1000} \end{matrix}$$

Industry

Use Case

How we can use VV?

Camera

Auto Pilot

Tesla

object det

Obstacle

calculati

↳ apply brakes

Real Time

Kafka