

LAB 13 :- Understanding -the Architecture of a pretrained Model.

ADM:- To understand and analyze the architecture of a pre-trained deep learning model.

Pseudo code :-

- import required libraries
- load a pre-trained model from pytorch
- Display the full architecture of the model.
- Count total trainable vs non-trainable parameters.
- Visualize layer types (conv, pooling).
- Optionally, pass a sample image through the model to verify dimensions.
- Analyze layer - by - layer flow and parameter size.

Observation:

- The VGG16 model consists of 13 convolutional layers, 3 fully connected layers, and uses ReLU after each convolution.
- The model ends with a softmax classifier.
- The feature extracted part includes multiple convolutional blocks, which

progressively reduce spatial dimensions.

→ total parameters are around 138 million.

→ pre-trained weights help in transfer learning.

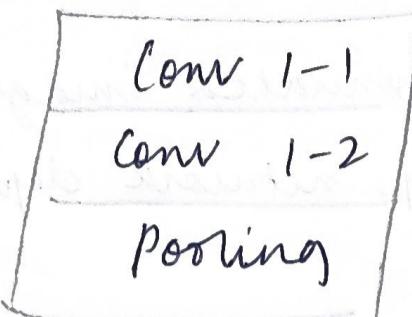
Result:

→ The architecture and structure of the pretrained model were successfully analyzed.

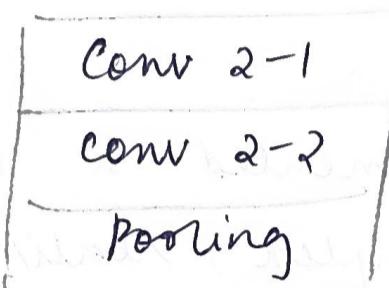
Eq. 8

VGG 10 - Architecture Diagram

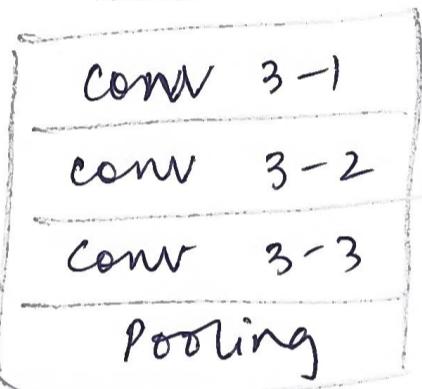
Input →



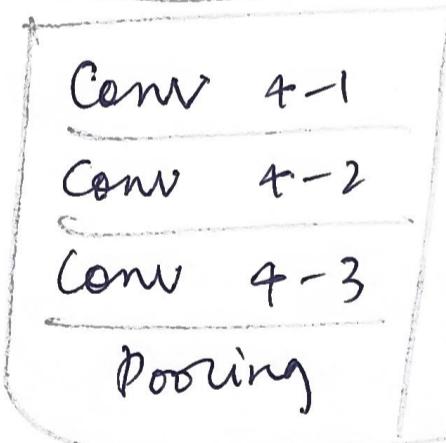
3x3 filters
64 channels



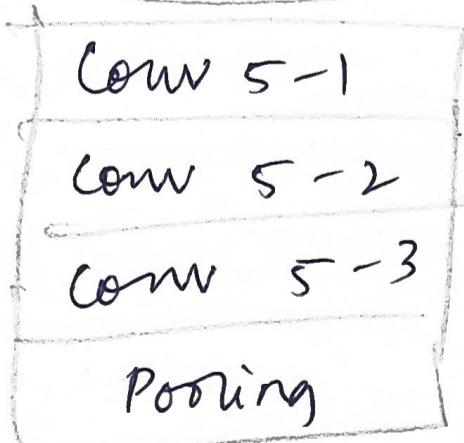
3x3 filters
128 channels



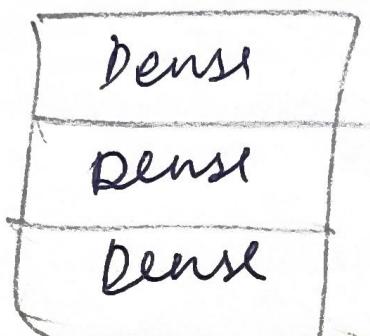
3x3 filters
256 channels



3x3 filters
512 channels



3x3 filters
512 channels



Customizable
dense layers
output

<u>Output</u>	Top Accuracy	Top Accuracy	→
VGG16	79.0%	94.5%	→
Training	Validation	Testing	
86.62%	91.95%	29.97%	
Parameters			→
22.97%			

(cross-validation) support vector classifier
 Support vector classifier is very promising
 classification method of because it
 has cross validation - good generalization
 properties.

Introducing a new algorithm
 when two input features are given to the
 algorithm, it will find a linear
 relationship between them. This
 relationship can be used to predict
 the output value of the other feature.
 This is called linear regression.