**Assignment\_8**

1. Using our own terms and diagrams, explain INCEPTIONNET ARCHITECTURE.

**Ans: An inception network is a deep neural network with an architectural design that consists of repeating components referred to as Inception modules. As mentioned earlier, this article focuses on the technical details of the inception module.**

1. Describe the Inception block.

**Ans: An Inception Module is an image model block that aims to approximate an optimal local sparse structure in a CNN. Put simply, it allows for us to use multiple types of filter size, instead of being restricted to a single filter size, in a single image block, which we then concatenate and pass onto the next layer.**

1. What is the DIMENSIONALITY REDUCTION LAYER (1 LAYER CONVOLUTIONAL)?

Ans: Image result for DIMENSIONALITY REDUCTION LAYER (1 LAYER CONVOLUTIONAL)? in computer vision

**The 1D Convolution block represents** **a layer that can be used to detect features in a vector**.

**A convolutional layer with a 1×1 filter can, therefore, be used at any point in a convolutional neural network to control the number of feature maps. As such, it is often referred to as a projection operation or projection layer, or even a feature map or channel pooling layer**.

1. THE IMPACT OF REDUCING DIMENSIONALITY ON NETWORK PERFORMANCE

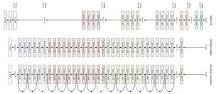
**Ans: It reduces the time and storage space required. The removal of multicollinearity improves the interpretation of the parameters of the machine learning model. It becomes easier to visualize the data when reduced to very low dimensions such as 2D or 3D. Reduce space complexity.**

1. Mention three components. Style GoogLeNet

**Ans: Auxilary Classifier**

**Before bringing the exploration of the GoogLeNet architecture to a close, there's one more component that was implemented by the creators of the network to regularise and prevent overfitting. This additional component is known as an Auxilary Classifier.**

1. Using our own terms and diagrams, explain RESNET ARCHITECTURE.

Ans: 

**ResNet, which was proposed in 2015 by researchers at Microsoft Research introduced a new architecture called Residual Network. Residual Block: In order to solve the problem of the vanishing/exploding gradient, this architecture introduced the concept called Residual Network.**

1. What do Skip Connections entail?

**Ans: Skip Connections (or Shortcut Connections) as the name suggests skips some of the layers in the neural network and feeds the output of one layer as the input to the next layers. Skip Connections were introduced to solve different problems in different architectures.**

1. What is the definition of a residual Block?

**Ans: A residual block is a stack of layers set in such a way that the output of a layer is taken and added to another layer deeper in the block. The non-linearity is then applied after adding it together with the output of the corresponding layer in the main path**

1. How can transfer learning help with problems?

**Ans: In transfer learning, a machine exploits the knowledge gained from a previous task to improve generalization about another. For example, in training a classifier to predict whether an image contains food, you could use the knowledge it gained during training to recognize drinks**.

1. What is transfer learning, and how does it work?

**Ans: In transfer learning, a machine exploits the knowledge gained from a previous task to improve generalization about another. For example, in training a classifier to predict whether an image contains food, you could use the knowledge it gained during training to recognize drinks.**

11. HOW DO NEURAL NETWORKS LEARN FEATURES?

**Ans: Neural networks generally perform supervised learning tasks, building knowledge from data sets where the right answer is provided in advance. The networks then learn by tuning themselves to find the right answer on their own, increasing the accuracy of their predictions.**

1. WHY IS FINE-TUNING BETTER THAN START-UP TRAINING?

**Ans: Learning from scratch is a building completely a new model or mixing parts of others, and do training from the first layer.** **Fine tuning of the network is the process when you adjust parameters such as a learning rate, the number of epochs, the optimizer, regularization parameters etc. to achieve best possible results**.