1. What is the COVARIATE SHIFT Issue, and how does it affect you?

Covariate shift refers to a situation in which the distribution of input features (covariates) in the training data differs from the distribution of input features in the test or deployment data. It occurs when the underlying data generating process changes between the training and testing phases. This shift in distribution can affect the performance and generalization ability of machine learning models.

1. What is the process of BATCH NORMALIZATION?

Batch normalization is a technique used in deep neural networks to normalize the activations of each layer by adjusting and scaling the inputs within mini-batches during training. It aims to improve the stability, convergence, and performance of the model by reducing the internal covariate shift and making the optimization process more efficient.

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

LeNet-5 is a classic convolutional neural network architecture designed by Yann LeCun et al. in the 1990s for handwritten digit recognition. It consists of a series of convolutional, pooling, and fully connected layers.

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

AlexNet is a popular convolutional neural network architecture developed by Alex Krizhevsky, Ilya Sutskever, and Geoffrey Hinton. It achieved groundbreaking results in the ImageNet Large Scale Visual Recognition Challenge (ILSVRC) in 2012.

1. Describe the vanishing gradient problem.

The vanishing gradient problem is a phenomenon that occurs during the training of deep neural networks, particularly those with many layers.

1. What is NORMALIZATION OF LOCAL RESPONSE?

Normalization of Local Response, also known as Local Response Normalization (LRN), is a technique used in convolutional neural networks (CNNs) to normalize the responses of neurons within a local neighborhood. It aims to enhance the contrast between activated neurons and suppress activations that are relatively weaker.

1. In AlexNet, what WEIGHT REGULARIZATION was used?

In AlexNet, weight regularization was applied in the form of L2 regularization, also known as weight decay. L2 regularization is a common technique used to prevent overfitting in deep neural networks by adding a regularization term to the loss function during training.

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

VGGNet, also known as the Visual Geometry Group network, is a popular convolutional neural network architecture developed by the Visual Geometry Group at the University of Oxford. It has achieved excellent performance on various computer vision tasks.

1. Describe VGGNET CONFIGURATIONS.

VGGNet is known for its various configurations that differ in depth. These configurations are commonly referred to as VGG16 and VGG19, representing the number of weight layers in the network.

1. What regularization methods are used in VGGNET to prevent overfitting?

VGGNet primarily utilizes two regularization methods to prevent overfitting: dropout and weight decay (L2 regularization).