CLASSIFICATION OF DOG AND CAT USING CNN

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Classifying images of dogs and cats is a classic problem in computer vision, and one approach to solve it is by using Convolutional Neural Networks.In this we give an image input where the machine has to classify it as a dog or a cat.

CNNs are designed to detect patterns in images.Simple patterns such as edges and curves can be detected by the first layer of a CNN, while more complex features such as eyes, noses, and fur can be detected by the deeper layers.In the final layer, the model puts the image into one of the classes.

We need a lot of labeled images of dogs and cats to train a CNN.The model learns to adjust its weights based on the input images and labels.The model can learn to recognize patterns and features that are relevant to classification of dogs and cats with backpropagation.We can use the CNN model to classify new images of dogs and cats that it has never seen before.

A confidence score that indicates how certain the model is about its prediction is what the model uses to process the image.On the scale 0-1,0 being cat and 1 being dog the machine gives the image a score and classifies it.CNN is an effective approach because it can automatically learn to detect relevant features in the images, without the need for feature engineering.This makes it a powerful tool for many image processing tasks, including object detection, face recognition, and medical image analysis

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case of classifying images of dogs and cats, a CNN would typically be trained on a dataset of labeled images, where each image is labeled as a dog or a cat.The CNN consists of several layers of cells.The input image has spatial features that the convolutional layers are responsible for learning.

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Artificial intelligence is used to adjust the weights and biases of the network to minimize the error between the predicted outputs and the actual labels of the training data.Backpropagation is a key component of training CNNs and is also used to improve the CNN's hyperparameters.The architecture and performance of the CNN are determined by these hyperparameters, and they can be adjusted to improve the accuracy of the network on the target task.Techniques such as saliency mapping or visualization highlight the regions of an input image that are most important for the network's decision.