what is zero shot learning

Zero-shot learning is a machine learning and computer vision concept that refers to the ability of a model to recognize and classify objects or concepts that it has never seen or been trained on before. In traditional supervised learning, models are trained on labeled data, and they can only classify objects into categories that were part of their training dataset. In zero-shot learning, models are expected to classify objects into categories that were not present in the training data, often by using some form of semantic descriptions or attributes associated with the categories.

Zero-shot learning is particularly useful when dealing with large and dynamic datasets where it's impractical to retrain models every time a new category or concept needs to be recognized. It's commonly used in natural language processing and computer vision tasks, such as image recognition, where the number of possible object classes can be vast and continually evolving. Techniques like semantic embeddings, knowledge graphs, and attribute-based classification are often used to enable zero-shot learning.

Zero-shot learning is a machine learning paradigm in which a model is trained to recognize or classify objects, concepts, or entities it has never seen or been explicitly trained on. In traditional supervised learning, a model is trained on a labeled dataset with examples of each class it needs to recognize. In zero-shot learning, the model is expected to generalize to classes that it has never encountered during training.

Zero-shot learning typically involves two main components:

1. \*\*Seen Classes\*\*: These are the classes that the model is trained on and has seen during the training phase. The model learns to understand the relationships and characteristics of these classes.

2. \*\*Unseen Classes\*\*: These are the classes that the model needs to recognize, but it has not seen any examples of them during training. Instead, it relies on the knowledge it has acquired about the seen classes to make predictions about the unseen classes.

To achieve zero-shot learning, models often use semantic attributes or embeddings to bridge the gap between seen and unseen classes. These attributes or embeddings describe various characteristics or features of the classes, allowing the model to make inferences about the unseen classes based on their similarities or differences from the seen classes.

Zero-shot learning is particularly useful in scenarios where it is impractical or costly to obtain labeled data for all possible classes. It has applications in image classification, natural language processing, and many other fields where machine learning is applied.

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Links :

split-folders 0.5.1 : splitfolders lets you split files into equally-sized groups based on their prefix.

<https://pypi.org/project/split-folders/>