Unseen Classes: The Paradigm Shift in Machine Learning

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Abstract : Unseen class discovery has now become an important part of a machine-learning algorithm to judge new classes. Unseen classes are the classes on which the machine learning model is not trained on. With the advancement in technology and AI replacing humans, the amount of data has increased to the next level. So while implementing a model on real-world examples, we come across unseen new classes. Our aim is to find the number of unseen classes by using a hierarchical-based active learning algorithm. The algorithm is based on hierarchical clustering as well as active sampling. The number of clusters that we will get in the end will give the number of unseen classes. The total clusters will also contain some clusters that have unseen classes. Instead of first discovering unseen classes and then finding their number, we directly calculated the number by applying the algorithm. The dataset used is for intent classification. The target data is the intent of the corresponding query. We conclude that when the machine learning model will encounter real-world data, it will automatically find the number of unseen classes. In the future, our next work would be to label these unseen classes correctly.