

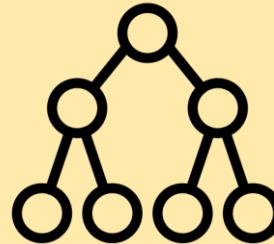
Comparative Study on Classification of Depressed and Non-Depressed Subjects using Tree based Ensemble Models



Uniformly segmented in length of 1440 mins and labelled based on type



Tree Based Ensemble Model



Depression Dataset: Dataset consists of motor-activity measurements of 23 unipolar or bipolar depressed subjects and 32 control subjects having no sign of depression.

Experiment: Fed the dataset to Tree based ensemble models namely AdaBoost, XGBoost, CatBoost & GBM to classify the subjects as:

- Binary Classes: Depressed & Non-Depressed
- Multiple Classes: No, Mild, severe Depression

Binary Classification:

Ensemble Model	Accuracy	F1-Score	Precision Score	Recall Score
AdaBoost	0.70	0.70	0.70	0.71
XGBoost	0.72	0.72	0.72	0.73
CatBoost	0.78	0.78	0.78	0.78
GBM	0.76	0.76	0.67	0.76

Multi-class Classification:

Ensemble Model	Accuracy	F1-Score	Precision Score	Recall Score
AdaBoost	0.89	0.89	0.89	0.89
XGBoost	0.87	0.87	0.87	0.87
CatBoost	0.89	0.89	0.89	0.89
GBM	0.88	0.88	0.88	0.88

In both the experiment CatBoost performed better compared to other ensemble models.