

- (1) The ensemble classifiers give better classification quality than the case of the use of single classifiers.
- (2) The use of AdaBoost algorithm with component classifiers using DT helps to improve the best classification quality compared to other ensemble algorithms when classifying DoS attack on UNSW-NB15 dataset.
- (3) The training and testing time of ensemble classifiers is larger than that of single classifiers, especially when using Stacking and Decorate techniques.
- (4) Decorate technique helps to improve classification quality with small training datasets such as: NSL-KDD, KDD99 [20]. However, for large datasets such as UNSW-NB15, this algorithm is not effective.
- (5) The use of $F - Measure$ to evaluate classification quality improves the harmonious relationship between $Precision$ and $Recall$.

At the same time, the experimental results also set out issues that need to be further studied, especially the contents:

- (1) Combined with feature reduction techniques [21], [16] to have a more effective classification system on both criteria: training time and $F - Measure$.
- (2) The ability to process data as well as calculation of machine systems plays an important role in the operation of algorithms as well as machine learning methods. Since then, improve processing efficiency and access to artificial intelligence.

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