

**Abstract:** Twitter is one of the most popular social media platforms today for information dissemination. It is favored by the public due to its real-time information sharing capabilities. Twitter provides two important features for information dissemination: Tweets and Retweets. Tweets allow users to write messages that can be instantly shared. Each tweet can contain text, media such as images, videos, or URLs. Retweets allow users to repost someone else's tweet and distribute it to their own followers. The Retweet feature is considered an effective way to spread information, as a high number of retweets indicates that the information in the tweet is spreading quickly and widely. This research aims to predict retweets based on several features: User-Based Feature, Content-Based Feature, and Time-Based Feature. The classification method used is Artificial Neural Network, which is optimized using a Nature-Inspired Algorithm called Bat Algorithm. The evaluation results of this study show an accuracy of 86%, precision of 87.8%, recall of 93.6%, and F1-score of 90.6% without imbalance class handling. Under Undersampling condition, the accuracy is 80.8%, precision is 91.0%, recall is 81.4%, and F1-score is 85.9%. Under Oversampling condition, the accuracy is 82.4%, precision is 89.6%, recall is 85.6%, and F1-score is 87.5%. These results indicate that using user-based, content-based, and time-based features, applying Artificial Neural Network classification method, and optimizing hyperparameters using Bat Algorithm are effective in predicting retweets.

**Keywords:** Retweet; Artificial Neural Network; Bat Algorithm; Undersampling; Oversampling