

**Abstract**

The use of social media is increasing rapidly. Various kinds of information can be obtained from social media platforms, one of them is on Twitter. User biographical information and tweets are the important assets for research that can describe the Big five personalities, including openness, conscientiousness, extraversion, agreeableness, and neuroticism. Several previous studies have been attempted about prediction of Big five personality. However, the authors found problems, how to improve the performance of the personality prediction system. Therefore, this study aims to predict Big five personality of Twitter users and improve the performance of the personality prediction system. The prediction system was built using the classification method Support Vector Machine (SVM). In improving the performance, we implement technique sampling, feature selection, and hyperparameter tuning. This study also applies linguistic feature extraction, such as TF-IDF and LIWC. By using 287 data Twitter users obtained from online survey, and applying all optimization techniques, the result achieve 84,22% accuracy score.

**Keywords: Big Five Personality, SVM, LIWC, TF-IDF, optimization**