**ABSTRACT**

Some improper behaviors in specific situations may put people in danger, such as smoking in a gas station, therefore they need to be detected. This paper tries to find out the best Machine Learning algorithm to address that kind of prediction problems. Datasets related to behavior detection are collected, whose categories consist of smoking, calling and normal behaviors. Experiments based on several famous algorithms are conducted, including Linear Support Vector Machine (LSVM), Kernel Support Vector Machine (KSVM), Decision Tree Classifier (DT), Random Forest Classifier (RF), K-nearest Neighbors (KNN) and K-Means Clustering. Additionally, Confusion Matrix and Mean Squared Error (MSE) are used to judge the performance of each algorithm. Finally, Principal Component Analysis (PCA) visualizes the outcome of the best algorithm. The results show that Random Forest Classifier (RF) achieves the best performance and is capable of predicting people’s abnormal behaviors with an accuracy of 82%.