In our paper, we implemented Naïve Bayes, Random Forest, SVM, and kNN using Python and Scikit-Learn. Table 3 lists the key parameters and experimental parameters considered for the work in the Scikit-Learn library of these models.

**Table 3: Parameters and Experimental parameters of machine learning models**

|  |  |  |
| --- | --- | --- |
| **Model** | **Parameters** | **Experimental parameters** |
| Naïve Bayes | var\_smoothing: 1e-9 | -- |
| Random Forest | n\_estimators: 50,  criterion: "gini",  max\_depth: None,  max\_features: sqrt(n\_features),  bootstrap: True, | n\_estimators: 100,50,20,10,5  max\_depth:5,10,20, None (Expand node until all leaves are pure) |
| SVM | penalty: "l2",  kernel: "linear"  loss: "squared\_hinge",  Tolerance stopping standard: 1e-4,  Penalty parameter for error items: 0.5,  max\_iter: 1000 | kernel: "linear","rbf"  Tolerance stopping standard: 1e-3,1e-4  Penalty parameter for error items: 0.1,0.2,0.5,0.8,1.0, |
| KNN | n\_neighbors: 7,  leaf\_size: 30,  p: 2,  metric: "minkowski", | n\_neighbors: 3,4,5,6,7,8,9,10 |