Appendix D: The results of GridSearchCV after feature selection

Table 1: 1-Step Model of the MC-UNSW-NB15 dataset

Layer	Model	Selected Parameters
3	RF	max_depth=10

Table 2: 2-Step Model of the MC-UNSW-NB15 dataset

Layer	Model	Selected Parameters
1	DT	max_depth=10
3	KNN	metric='manhattan', n_neighbors=7, weights='distance'

Table 3: 3-Step Model of the MC-UNSW-NB15 dataset

Layer	Model	Selected Parameters
1	DT	max_depth=10
2	DT	max_depth=10, min_samples_split=3
3(Reconnaissance)	RF	max_depth=10
3(Access)	KNN	metric='manhattan',n_neighbors=7,weights='distance'
3(DoS)	KNN	metric='manhattan',n_neighbors=7,weights='distance'
3(Malware)	AdaBoost	None

Table 4: 1-Step Model of the MC-CIC-IDS2017 dataset

Layer	Model	Selected Parameters
3	DT	max_depth=10

Table 5: 2-Step Model of the MC-CIC-IDS2017 dataset

Layer	Model	Selected Parameters
1	DT	max_depth=10, min_samples_split=3
3	MLP	hidden_layer_sizes=(150,), max_iter=10000

Table 6: 3-Step Model of the MC-CIC-IDS2017 dataset

Layer	Model	Selected Parameters
1	DT	max_depth=10, min_samples_split=3
2	RF	max_depth=10, n_estimators=50
3(Reconnaissance)	RF	max_depth=10, n_estimators=50
3(Access)	RF	max_depth=10, n_estimators=50
3(DoS)	KNN	metric='manhattan', weights='distance'
3(Malware)	AdaBoost	n_estimators=100