100X			
Model	**Feature**	**Technique**	**CPU Time**
HF + ML	Haralick	SGD	29.985793
HF + ML	Haralick	Decision Tree	29.985870
HF + ML	Haralick	Naive Bayes	29.985915
HF + ML	Haralick	Gradient Boosting	29.986916
HF + ML	Haralick	Linear SVM	30.009098
HF + ML	Haralick	Adaboost	30.012443
HF + ML	Haralick	KNN	30.020430
HF + ML	Haralick	Random Forest	30.026468
HF + ML	Haralick	Extremely Trees	30.036489
HF + ML	Haralick	SVM	30.046935
HF + ML	HOG	SGD	52.624104
HF + ML	HOG	Decision Tree	52.626567
HF + ML	HOG	Gradient Boosting	52.632166
HF + ML	HOG	Naive Bayes	52.641971
HF + ML	HOG	Random Forest	52.675099
HF + ML	HOG	Extremely Trees	52.692853
HF + ML	HOG	Adaboost	52.981604
HF + ML	HOG	Linear SVM	56.286357
HF + ML	HOG	SVM	56.491168
HF + ML	HOG	KNN	61.920136
DL + ML (TL)	RESNET 152	SGD	63.66504215
DL + ML (TL)	RESNET 152	Naive Bayes	63.66532342
DL + ML (TL)	RESNET 152	Decision Tree	63.66562365
DL + ML (TL)	RESNET 152	Gradient Boosting	63.66793265
DL + ML (TL)	RESNET 152	Adaboost	63.72893446
DL + ML (TL)	RESNET 152	Random Forest	63.73704256
DL + ML (TL)	RESNET 152	Extremely Trees	63.74701935
DL + ML (TL)	RESNET 152	Linear SVM	63.92812346
DL + ML (TL)	RESNET 152	KNN	64.1836301
DL + ML (TL)	RESNET 152	SVM	64.44996289
DL + ML (TL)	IV3	SGD	68.54302412
DL + ML (TL)	IV3	Decision Tree	68.54325321
DL + ML (TL)	IV3	Naive Bayes	68.54528324
DL + ML (TL)	IV3	Gradient Boosting	68.54552446
DL + ML (TL)	IV3	Random Forest	68.60482449
DL + ML (TL)	IV3	Adaboost	68.60983212
DL + ML (TL)	IV3	Extremely Trees	68.62072446
DL + ML (TL)	IV3	KNN	68.94872446
DL + ML (TL)	IV3	SVM	69.05748365
DL + ML (TL)	IV3	Linear SVM	69.187913
DL + ML (FT)	IV3	SGD	105.1455382
DL + ML (FT)	IV3	Decision Tree	105.1459976
DL + ML (FT)	IV3	Gradient Boosting	105.1478976
DL + ML (FT)	IV3	Naive Bayes	105.1493351
DL + ML (FT)	IV3	Adaboost	105.2096767
DL + ML (FT)	IV3	Random Forest	105.2137305
DL + ML (FT)	IV3	Extremely Trees	105.2204276
DL + ML (FT)	IV3	KNN	105.3349035
DL + ML (FT)	IV3	Linear SVM	105.4703985
DL + ML (FT)	IV3	SVM	105.7094361
DL + ML (FT)	RESNET 152	SGD	113.1459362
DL + ML (FT)	RESNET 152	Decision Tree	113.1460692
DL + ML (FT)	RESNET 152	Naive Bayes	113.14845
DL + ML (FT)	RESNET 152	Gradient Boosting	113.1485556
DL + ML (FT)	RESNET 152	Random Forest	113.2069456
DL + ML (FT)	RESNET 152	Adaboost	113.2154871
DL + ML (FT)	RESNET 152	Extremely Trees	113.2279386
DL + ML (FT)	RESNET 152	Linear SVM	113.3217757
DL + ML (FT)	RESNET 152	KNN	113.3809396
DL + ML (FT)	RESNET 152	SVM	113.6584405
HF + ML	LBP	Decision Tree	143.858074
HF + ML	LBP	Naive Bayes	143.858104
HF + ML	LBP	SGD	143.858165
HF + ML	LBP	Gradient Boosting	143.859096
HF + ML	LBP	Linear SVM	143.881076
HF + ML	LBP	Adaboost	143.881908
HF + ML	LBP	Random Forest	143.892601
HF + ML	LBP	Extremely Trees	143.901353
HF + ML	LBP	KNN	143.904181
HF + ML	LBP	SVM	143.909649
DL + ML (FT)	VGG 19	SGD	289.3895844
DL + ML (FT)	VGG 19	Decision Tree	289.3899566
DL + ML (FT)	VGG 19	Gradient Boosting	289.3911972
DL + ML (FT)	VGG 19	Naive Bayes	289.3922972
DL + ML (FT)	VGG 19	Random Forest	289.4389726
DL + ML (FT)	VGG 19	Extremely Trees	289.4573866
DL + ML (FT)	VGG 19	Adaboost	289.4741972
DL + ML (FT)	VGG 19	Linear SVM	289.5919566
DL + ML (FT)	VGG 19	KNN	289.8118532
DL + ML (FT)	VGG 19	SVM	290.0008972
HF + ML	LPQ	Decision Tree	291.6627859
HF + ML	LPQ	SGD	291.663653
HF + ML	LPQ	Naive Bayes	291.6643372

100X			
Model	**Feature**	**Technique**	**GPU Time**
HF + ML	Haralick	Naive Bayes	23.779848
HF + ML	Haralick	SGD	23.779942
HF + ML	Haralick	Decision Tree	23.780133
HF + ML	Haralick	Gradient Boosting	23.781103
HF + ML	Haralick	KNN	23.801288
HF + ML	Haralick	Linear SVM	23.802883
HF + ML	Haralick	Adaboost	23.804291
HF + ML	Haralick	Random Forest	23.820048
HF + ML	Haralick	SVM	23.824288
HF + ML	Haralick	Extremely Trees	23.830291
HF + ML	HOG	SGD	42.786743
HF + ML	HOG	Decision Tree	42.788743
HF + ML	HOG	Gradient Boosting	42.795124
HF + ML	HOG	Naive Bayes	42.804627
HF + ML	HOG	Random Forest	42.837745
HF + ML	HOG	Extremely Trees	42.855806
HF + ML	HOG	Adaboost	43.135837
HF + ML	HOG	Linear SVM	44.299752
HF + ML	HOG	SVM	45.906137
DL + ML (TL)	IV3	SGD	46.4851706
DL + ML (TL)	IV3	Decision Tree	46.4852968
DL + ML (TL)	IV3	Naive Bayes	46.4870965
DL + ML (TL)	IV3	Gradient Boosting	46.4872429
DL + ML (TL)	IV3	Random Forest	46.5390967
DL + ML (TL)	IV3	Adaboost	46.5507738
DL + ML (TL)	IV3	Extremely Trees	46.5561349
DL + ML (TL)	IV3	KNN	46.6940504
DL + ML (TL)	IV3	Linear SVM	46.8878423
DL + ML (TL)	IV3	SVM	46.9680899
DL + ML (TL)	RESNET 152	Decision Tree	49.7959141
DL + ML (TL)	RESNET 152	SGD	49.7960109
DL + ML (TL)	RESNET 152	Naive Bayes	49.7975466
DL + ML (TL)	RESNET 152	Gradient Boosting	49.7978815
DL + ML (TL)	RESNET 152	Random Forest	49.8440564
DL + ML (TL)	RESNET 152	Extremely Trees	49.8561432
DL + ML (TL)	RESNET 152	Adaboost	49.8620955
DL + ML (TL)	RESNET 152	Linear SVM	50.0378741
DL + ML (TL)	RESNET 152	SVM	50.1737646
DL + ML (TL)	RESNET 152	KNN	50.2549402
HF + ML	HOG	KNN	51.631135
DL + ML (FT)	IV3	SGD	60.3915325
DL + ML (FT)	IV3	Decision Tree	60.3918683
DL + ML (FT)	IV3	Naive Bayes	60.3936202
DL + ML (FT)	IV3	Gradient Boosting	60.3936861
DL + ML (FT)	IV3	Random Forest	60.4397749
DL + ML (FT)	IV3	Extremely Trees	60.453186
DL + ML (FT)	IV3	Adaboost	60.4556061
DL + ML (FT)	IV3	KNN	60.5523565
DL + ML (FT)	IV3	Linear SVM	60.6031073
DL + ML (FT)	IV3	SVM	60.8767157
DL + ML (FT)	RESNET 152	SGD	73.2055029
DL + ML (FT)	RESNET 152	Decision Tree	73.2057193
DL + ML (FT)	RESNET 152	Gradient Boosting	73.207543
DL + ML (FT)	RESNET 152	Naive Bayes	73.2076336
DL + ML (FT)	RESNET 152	Random Forest	73.2538305
DL + ML (FT)	RESNET 152	Extremely Trees	73.2688638
DL + ML (FT)	RESNET 152	Adaboost	73.2768846
DL + ML (FT)	RESNET 152	Linear SVM	73.343311
DL + ML (FT)	RESNET 152	KNN	73.3497136
DL + ML (FT)	RESNET 152	SVM	73.6322007
HF + ML	LBP	Naive Bayes	120.006788
HF + ML	LBP	Decision Tree	120.006797
HF + ML	LBP	Gradient Boosting	120.006997
HF + ML	LBP	SGD	120.007089
HF + ML	LBP	KNN	120.027088
HF + ML	LBP	Adaboost	120.027801
HF + ML	LBP	Random Forest	120.032221
HF + ML	LBP	Extremely Trees	120.054977
HF + ML	LBP	SVM	120.056588
HF + ML	LBP	Linear SVM	120.129966
DL + ML (FT)	VGG 19	SGD	218.764391
DL + ML (FT)	VGG 19	Decision Tree	218.764616
DL + ML (FT)	VGG 19	Gradient Boosting	218.766275
DL + ML (FT)	VGG 19	Naive Bayes	218.76643
DL + ML (FT)	VGG 19	Random Forest	218.809027
DL + ML (FT)	VGG 19	Extremely Trees	218.820866
DL + ML (FT)	VGG 19	Adaboost	218.836467
DL + ML (FT)	VGG 19	Linear SVM	218.933325
DL + ML (FT)	VGG 19	KNN	219.075573
DL + ML (FT)	VGG 19	SVM	219.267652
HF + ML	LPQ	Decision Tree	270.325703
HF + ML	LPQ	SGD	270.325775
HF + ML	LPQ	Gradient Boosting	270.326897

Approach	Features	Classifier	Value
HF + ML	LPQ	Gradient Boosting	291.6643753
HF + ML	LPQ	Random Forest	291.6996113
HF + ML	LPQ	Extremely Trees	291.70725
HF + ML	LPQ	Adaboost	291.7245732
HF + ML	LPQ	Linear SVM	291.8990654
HF + ML	LPQ	SVM	292.0673847
HF + ML	LPQ	KNN	292.2099868
DL + ML (FT)	VGG 19 + RESNET 152	SGD	402.5360771
DL + ML (FT)	VGG 19 + RESNET 152	Decision Tree	402.5368495
DL + ML (FT)	VGG 19 + RESNET 152	Gradient Boosting	402.5389135
DL + ML (FT)	VGG 19 + RESNET 152	Naive Bayes	402.5398191
DL + ML (FT)	VGG 19 + RESNET 152	Extremely Trees	402.5812212
DL + ML (FT)	VGG 19 + RESNET 152	Random Forest	402.5815302
DL + ML (FT)	VGG 19 + RESNET 152	Adaboost	402.6297212
DL + ML (FT)	VGG 19 + RESNET 152	Linear SVM	402.7905196
DL + ML (FT)	VGG 19 + RESNET 152	KNN	402.9201862
DL + ML (FT)	VGG 19 + RESNET 152	SVM	404.4796266
HF + ML	LBP + LPQ	SGD	435.520155
HF + ML	LBP + LPQ	Decision Tree	435.520410
HF + ML	LBP + LPQ	Gradient Boosting	435.522107
HF + ML	LBP + LPQ	Naive Bayes	435.522198
HF + ML	LBP + LPQ	Random Forest	435.556131
HF + ML	LBP + LPQ	Extremely Trees	435.566175
HF + ML	LBP + LPQ	Adaboost	435.585816
HF + ML	LBP + LPQ	Linear SVM	435.717460
HF + ML	LBP + LPQ	KNN	435.886674
HF + ML	LBP + LPQ	SVM	435.926990
HF + ML	LBP + LPQ + GLCM	SGD	465.505634
HF + ML	LBP + LPQ + GLCM	Decision Tree	465.505892
HF + ML	LBP + LPQ + GLCM	Gradient Boosting	465.507745
HF + ML	LBP + LPQ + GLCM	Naive Bayes	465.507955
HF + ML	LBP + LPQ + GLCM	Random Forest	465.541376
HF + ML	LBP + LPQ + GLCM	Extremely Trees	465.551227
HF + ML	LBP + LPQ + GLCM	Adaboost	465.581040
HF + ML	LBP + LPQ + GLCM	Linear SVM	465.671671
HF + ML	LBP + LPQ + GLCM	KNN	465.885760
HF + ML	LBP + LPQ + GLCM	SVM	465.928554
DL + ML (FT)	VGG 19 + RESNET 152 + IV3	SGD	507.6789685
DL + ML (FT)	VGG 19 + RESNET 152 + IV3	Decision Tree	507.6815035
DL + ML (FT)	VGG 19 + RESNET 152 + IV3	Gradient Boosting	507.685369
DL + ML (FT)	VGG 19 + RESNET 152 + IV3	Naive Bayes	507.6866592
DL + ML (FT)	VGG 19 + RESNET 152 + IV3	Random Forest	507.7180782
DL + ML (FT)	VGG 19 + RESNET 152 + IV3	Extremely Trees	507.7388618
DL + ML (FT)	VGG 19 + RESNET 152 + IV3	Adaboost	507.8778472
DL + ML (FT)	VGG 19 + RESNET 152 + IV3	Linear SVM	508.0774126
DL + ML (FT)	VGG 19 + RESNET 152 + IV3	KNN	508.2239635
DL + ML (FT)	VGG 19 + RESNET 152 + IV3	SVM	509.6000472
HF + ML	SIFT	SGD	523.441845
HF + ML	SIFT	Decision Tree	523.442071
HF + ML	SIFT	Gradient Boosting	523.443506
HF + ML	SIFT	Naive Bayes	523.443605
HF + ML	SIFT	Random Forest	523.484831
HF + ML	SIFT	Extremely Trees	523.484831
HF + ML	SIFT	Adaboost	523.505267
HF + ML	SIFT	Linear SVM	523.747709
HF + ML	SIFT	SVM	523.842322
HF + ML	SIFT	KNN	524.384220
DL	Xception	LSTM	828.7034
DL + ML (TL)	VGG 19	Decision Tree	1035.580984
DL + ML (TL)	VGG 19	Gradient Boosting	1035.581762
DL + ML (TL)	VGG 19	Naive Bayes	1035.583492
DL + ML (TL)	VGG 19	SGD	1035.584193
DL + ML (TL)	VGG 19	Random Forest	1035.630193
DL + ML (TL)	VGG 19	Adaboost	1035.649193
DL + ML (TL)	VGG 19	Extremely Trees	1035.66478
DL + ML (TL)	VGG 19	Linear SVM	1035.769123
DL + ML (TL)	VGG 19	SVM	1036.234275
DL + ML (TL)	VGG 19	KNN	1037.125093
DL + ML (TL)	VGG 19 + RESNET 152	SGD	1099.243338
DL + ML (TL)	VGG 19 + RESNET 152	Decision Tree	1099.244672
DL + ML (TL)	VGG 19 + RESNET 152	Gradient Boosting	1099.246652
DL + ML (TL)	VGG 19 + RESNET 152	Naive Bayes	1099.24777
DL + ML (TL)	VGG 19 + RESNET 152	Extremely Trees	1099.287262
DL + ML (TL)	VGG 19 + RESNET 152	Random Forest	1099.298562
DL + ML (TL)	VGG 19 + RESNET 152	Adaboost	1099.363668
DL + ML (TL)	VGG 19 + RESNET 152	Linear SVM	1099.696262
DL + ML (TL)	VGG 19 + RESNET 152	SVM	1100.065562
DL + ML (TL)	VGG 19 + RESNET 152	KNN	1101.696668
DL + ML (TL)	VGG 19 + RESNET 152 + IV3	Decision Tree	1167.786156
DL + ML (TL)	VGG 19 + RESNET 152 + IV3	SGD	1167.78653
DL + ML (TL)	VGG 19 + RESNET 152 + IV3	Gradient Boosting	1167.788919
DL + ML (TL)	VGG 19 + RESNET 152 + IV3	Naive Bayes	1167.79083
DL + ML (TL)	VGG 19 + RESNET 152 + IV3	Extremely Trees	1167.8340
DL + ML (TL)	VGG 19 + RESNET 152 + IV3	Adaboost	1167.906686
DL + ML (TL)	VGG 19 + RESNET 152 + IV3	Random Forest	1168.349496
HF + ML	LPQ	Naive Bayes	270.327361
HF + ML	LPQ	Random Forest	270.356024
HF + ML	LPQ	Extremely Trees	270.358251
HF + ML	LPQ	Adaboost	270.387496
HF + ML	LPQ	Linear SVM	270.520069
HF + ML	LPQ	SVM	270.702069
HF + ML	LPQ	KNN	270.872813
DL + ML (FT)	VGG 19 + RESNET 152	SGD	291.969702
DL + ML (FT)	VGG 19 + RESNET 152	Decision Tree	291.970225
DL + ML (FT)	VGG 19 + RESNET 152	Gradient Boosting	291.972434
DL + ML (FT)	VGG 19 + RESNET 152	Naive Bayes	291.972801
DL + ML (FT)	VGG 19 + RESNET 152	Random Forest	292.004429
DL + ML (FT)	VGG 19 + RESNET 152	Extremely Trees	292.004429
DL + ML (FT)	VGG 19 + RESNET 152	Adaboost	292.055642
DL + ML (FT)	VGG 19 + RESNET 152	Linear SVM	292.191573
DL + ML (FT)	VGG 19 + RESNET 152	KNN	292.241635
DL + ML (FT)	VGG 19 + RESNET 152	SVM	293.048747
DL + ML (FT)	VGG 19 + RESNET 152 + IV3	SGD	352.360966
DL + ML (FT)	VGG 19 + RESNET 152 + IV3	Decision Tree	352.361365
DL + ML (FT)	VGG 19 + RESNET 152 + IV3	Gradient Boosting	352.363884
DL + ML (FT)	VGG 19 + RESNET 152 + IV3	Naive Bayes	352.366542
DL + ML (FT)	VGG 19 + RESNET 152 + IV3	Random Forest	352.395515
DL + ML (FT)	VGG 19 + RESNET 152 + IV3	Extremely Trees	352.40487
DL + ML (FT)	VGG 19 + RESNET 152 + IV3	Adaboost	352.482147
DL + ML (FT)	VGG 19 + RESNET 152 + IV3	Linear SVM	352.685458
DL + ML (FT)	VGG 19 + RESNET 152 + IV3	KNN	352.790099
DL + ML (FT)	VGG 19 + RESNET 152 + IV3	SVM	354.052867
HF + ML	LBP + LPQ	SGD	390.332048
HF + ML	LBP + LPQ	Decision Tree	390.332145
HF + ML	LBP + LPQ	Naive Bayes	390.333994
HF + ML	LBP + LPQ	Gradient Boosting	390.333995
HF + ML	LBP + LPQ	Random Forest	390.366903
HF + ML	LBP + LPQ	Extremely Trees	390.374471
HF + ML	LBP + LPQ	Adaboost	390.395903
HF + ML	LBP + LPQ	Linear SVM	390.510284
HF + ML	LBP + LPQ	KNN	390.676828
HF + ML	LBP + LPQ	SVM	390.720820
HF + ML	LBP + LPQ + GLCM	SGD	414.111811
HF + ML	LBP + LPQ + GLCM	Decision Tree	414.112077
HF + ML	LBP + LPQ + GLCM	Naive Bayes	414.114140
HF + ML	LBP + LPQ + GLCM	Gradient Boosting	414.114819
HF + ML	LBP + LPQ + GLCM	Random Forest	414.145630
HF + ML	LBP + LPQ + GLCM	Extremely Trees	414.156629
HF + ML	LBP + LPQ + GLCM	Adaboost	414.176711
HF + ML	LBP + LPQ + GLCM	Linear SVM	414.205627
HF + ML	LBP + LPQ + GLCM	SVM	414.456681
HF + ML	LBP + LPQ + GLCM	KNN	414.486187
DL	Xception	LSTM	419.49154
DL + ML (TL)	VGG 19	Decision Tree	779.299674
DL + ML (TL)	VGG 19	SGD	779.300027
DL + ML (TL)	VGG 19	Naive Bayes	779.30135
DL + ML (TL)	VGG 19	Gradient Boosting	779.301676
DL + ML (TL)	VGG 19	Random Forest	779.347199
DL + ML (TL)	VGG 19	Extremely Trees	779.354124
DL + ML (TL)	VGG 19	Adaboost	779.367741
DL + ML (TL)	VGG 19	Linear SVM	779.427179
DL + ML (TL)	VGG 19	SVM	779.728277
DL + ML (TL)	VGG 19	KNN	780.158976
DL + ML (TL)	VGG 19 + RESNET 152	SGD	935.446745
DL + ML (TL)	VGG 19 + RESNET 152	Decision Tree	935.447002
DL + ML (TL)	VGG 19 + RESNET 152	Gradient Boosting	935.449223
DL + ML (TL)	VGG 19 + RESNET 152	Naive Bayes	935.449571
DL + ML (TL)	VGG 19 + RESNET 152	Random Forest	935.483271
DL + ML (TL)	VGG 19 + RESNET 152	Extremely Trees	935.491968
DL + ML (TL)	VGG 19 + RESNET 152	Adaboost	935.543499
DL + ML (TL)	VGG 19 + RESNET 152	Linear SVM	935.725412
DL + ML (TL)	VGG 19 + RESNET 152	SVM	936.206909
DL + ML (TL)	VGG 19 + RESNET 152	KNN	937.220416
DL + ML (TL)	VGG 19 + RESNET 152 + IV3	SGD	981.931124
DL + ML (TL)	VGG 19 + RESNET 152 + IV3	Decision Tree	981.931771
DL + ML (TL)	VGG 19 + RESNET 152 + IV3	Gradient Boosting	981.934035
DL + ML (TL)	VGG 19 + RESNET 152 + IV3	Naive Bayes	981.935635
DL + ML (TL)	VGG 19 + RESNET 152 + IV3	Random Forest	981.967268
DL + ML (TL)	VGG 19 + RESNET 152 + IV3	Extremely Trees	981.976409
DL + ML (TL)	VGG 19 + RESNET 152 + IV3	Adaboost	982.051196
DL + ML (TL)	VGG 19 + RESNET 152 + IV3	Linear SVM	982.351663
DL + ML (TL)	VGG 19 + RESNET 152 + IV3	SVM	982.821661
DL + ML (TL)	VGG 19 + RESNET 152 + IV3	KNN	984.463868
HF + ML	SIFT	Gradient Boosting	1212.102156
HF + ML	SIFT	SGD	1212.102557
HF + ML	SIFT	Decision Tree	1212.103003
HF + ML	SIFT	Naive Bayes	1212.104542
HF + ML	SIFT	Extremely Trees	1212.123663
HF + ML	SIFT	Random Forest	1212.124516
HF + ML	SIFT	Adaboost	1212.164756

DL + ML (TL)	VGG 19 + RESNET 152 + IV3	Linear SVM	1168.3700
DL + ML (TL)	VGG 19 + RESNET 152 + IV3	SVM	1168.70589
DL + ML (TL)	VGG 19 + RESNET 152 + IV3	KNN	1170.605586
DL		ResNet 152	27522.2158

HF + ML	SIFT	Linear SVM	1212.408649
HF + ML	SIFT	SVM	1212.486663
HF + ML	SIFT	KNN	1212.891557
DL		ResNet 152	8077.59624

DL + ML (TL)	VGG 19 + RESNET 152 + IV3	Linear SVM	1168.3700
DL + ML (TL)	VGG 19 + RESNET 152 + IV3	SVM	1168.70589
DL + ML (TL)	VGG 19 + RESNET 152 + IV3	KNN	1170.605586
DL		ResNet 152	27522.2158

HF + ML	SIFT	Linear SVM	1212.408649
HF + ML	SIFT	SVM	1212.486663
HF + ML	SIFT	KNN	1212.891557
DL		ResNet 152	8077.59624