Hyperparameters of best model

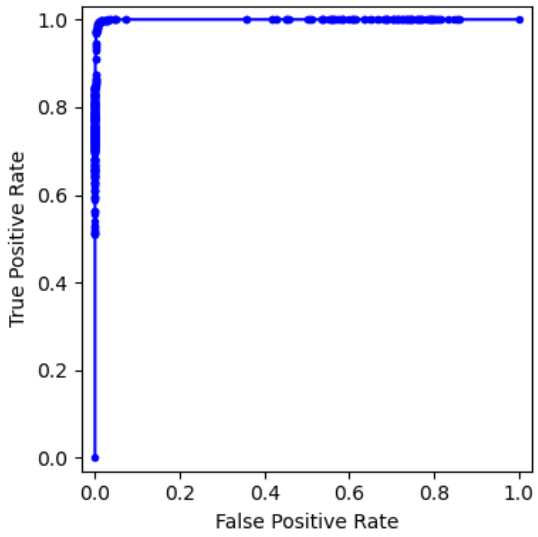
```
ThresholdClassifier(cache={}, classes=array([0, 1]),
                    clf=RandomForestClassifier(bootstrap='True',
                                               class_weight='balanced',
                                               max_features=9,
                                               min_samples_leaf=4,
                                               n_estimators=25,
                                               random_state=8675309),
                    threshold=0.5877485378567736)
```

Input Data Summary

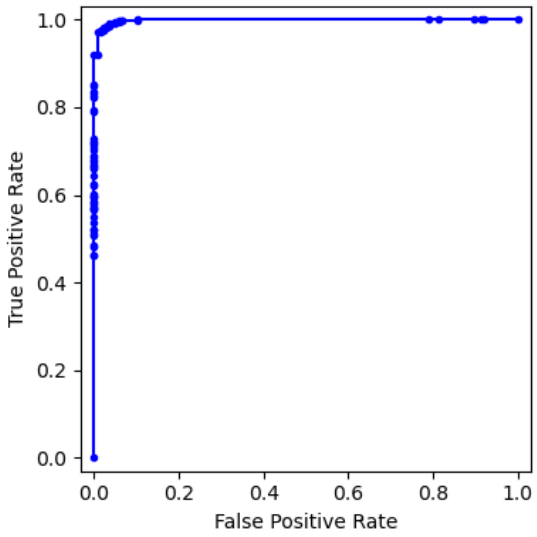
	n_examples	n_labels_positive	frac_labels_positive
split_name			
train	6829	5356	0.7843
test	750	612	0.8160

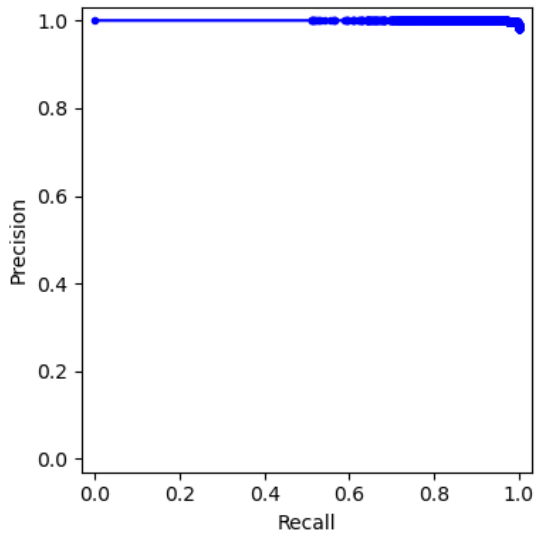
Performance Plots

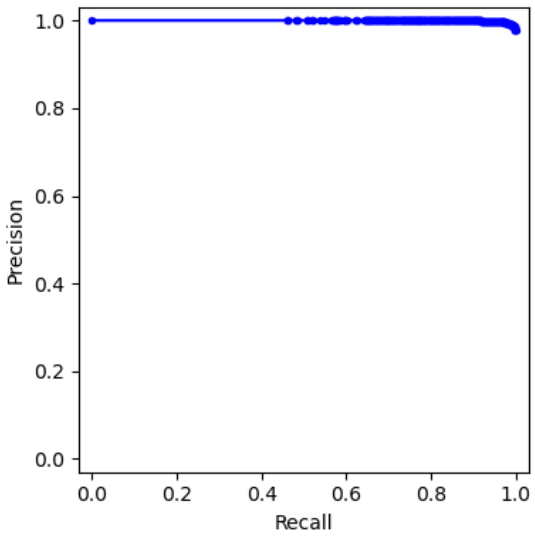
Train

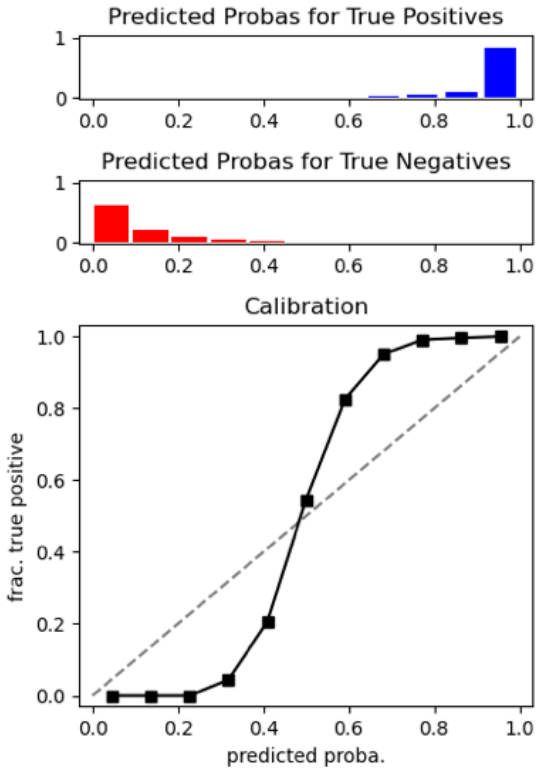


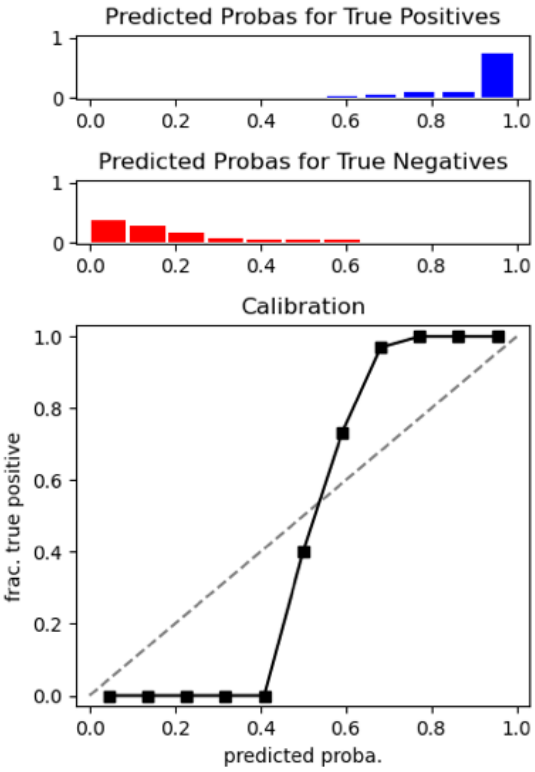
Test











Predicted label	0	1
True label		
0	1460	13
1	39	5317

Predicted label	0	1
True label		
0	134	4
1	11	601

Performance Metrics using Probabilities

	AUROC	AUPRC	average_precision	cross_entropy_base2

split_name				
train	0.9996	0.9999	0.9999	0.0955
test	0.9985	0.9997	0.9997	0.1608

Performance Metrics using Thresholded Decisions

	balanced_accuracy	accuracy	f1_score	TPR	TNR	PPV	NPV
split_name							
train	0.9919	0.9924	0.9951	0.9927	0.9912	0.9976	0.9740
test	0.9765	0.9800	0.9877	0.9820	0.9710	0.9934	0.9241

Settings: Hyperparameters to Tune

```
grid_max_features: [0.166, 0.333, 0.667, 1.0]
grid_min_samples_leaf: [4, 16, 64, 256, 1024, 4096, 16384]
```

Settings: Protocol

```
key_cols_to_group_when_splitting: ['subject_id']
n_splits: 3
outcome_col_name: horizontal_motion_binary_label
random_seed: 8675309
scoring: roc_auc
splitter_type: naive_split
threshold_scoring: balanced_accuracy
validation_size: 0.1
```

Settings: Data

```
data_dict_files: /Users/hezekiah/Documents/GitHub/time_series_prediction/datasets/unimib_shar_a
ctivities/v20200515/split-by=subject_id/collapsed_features_per_sequence/x_dict.json,/Users/heze
kiah/Documents/GitHub/time_series_prediction/datasets/unimib_shar_activities/v20200515/split-by
=subject_id/collapsed_features_per_sequence/y_dict.json
output_dir: /tmp/results/unimib_shar_activities/v20200515/split-by=subject_id/collapsed_feature
s_per_sequence/random_forest
test_csv_files: /Users/hezekiah/Documents/GitHub/time_series_prediction/datasets/unimib_shar_ac
tivities/v20200515/split-by=subject_id/collapsed_features_per_sequence/x_test.csv,/Users/hezeki
ah/Documents/GitHub/time_series_prediction/datasets/unimib_shar_activities/v20200515/split-by=s
ubject_id/collapsed_features_per_sequence/y_test.csv
train_csv_files: /Users/hezekiah/Documents/GitHub/time_series_prediction/datasets/unimib_shar_a
ctivities/v20200515/split-by=subject_id/collapsed_features_per_sequence/x_train.csv,/Users/heze
kiah/Documents/GitHub/time_series_prediction/datasets/unimib_shar_activities/v20200515/split-by
=subject_id/collapsed_features_per_sequence/y_train.csv
```

Hyperparameter Search results

Train Scores across splits

	params	mean_train_score	split0_train_score	split1_train_score	split2_train_score
0	{'max_features': 9, 'min_samples_leaf': 4}	1.0000	1.0000	1.0000	1.0000
	{'max_features': 9,				

1	'min_samples_leaf': 16}	0.9995	0.9995	0.9996	0.9993
2	{'max_features': 9, 'min_samples_leaf': 64}	0.9957	0.9969	0.9944	0.9957
3	{'max_features': 9, 'min_samples_leaf': 256}	0.9651	0.9659	0.9604	0.9690
4	{'max_features': 9, 'min_samples_leaf': 1024}	0.8476	0.8256	0.8769	0.8403
5	{'max_features': 9, 'min_samples_leaf': 4096}	0.5000	0.5000	0.5000	0.5000
6	{'max_features': 9, 'min_samples_leaf': 6147}	0.5000	0.5000	0.5000	0.5000
7	{'max_features': 18, 'min_samples_leaf': 4}	1.0000	1.0000	1.0000	1.0000
8	{'max_features': 18, 'min_samples_leaf': 16}	0.9994	0.9994	0.9994	0.9995
9	{'max_features': 18, 'min_samples_leaf': 64}	0.9953	0.9965	0.9951	0.9942
10	{'max_features': 18, 'min_samples_leaf': 256}	0.9678	0.9687	0.9652	0.9696
11	{'max_features': 18, 'min_samples_leaf': 1024}	0.8285	0.8477	0.8315	0.8062
12	{'max_features': 18, 'min_samples_leaf': 4096}	0.5000	0.5000	0.5000	0.5000
13	{'max_features': 18, 'min_samples_leaf': 6147}	0.5000	0.5000	0.5000	0.5000
14	{'max_features': 36, 'min_samples_leaf': 4}	0.9999	0.9999	0.9999	1.0000
15	{'max_features': 36, 'min_samples_leaf': 16}	0.9989	0.9992	0.9986	0.9991
	{'max_features':				

16	36, 'min_samples_leaf': 64}	0.9927	0.9953	0.9912	0.991
17	{'max_features': 36, 'min_samples_leaf': 256}	0.9664	0.9694	0.9634	0.966
18	{'max_features': 36, 'min_samples_leaf': 1024}	0.8074	0.8496	0.8026	0.770
19	{'max_features': 36, 'min_samples_leaf': 4096}	0.5000	0.5000	0.5000	0.500
20	{'max_features': 36, 'min_samples_leaf': 6147}	0.5000	0.5000	0.5000	0.500
21	{'max_features': 54, 'min_samples_leaf': 4}	0.9999	0.9999	0.9999	0.999
22	{'max_features': 54, 'min_samples_leaf': 16}	0.9980	0.9984	0.9977	0.997
23	{'max_features': 54, 'min_samples_leaf': 64}	0.9893	0.9921	0.9877	0.988
24	{'max_features': 54, 'min_samples_leaf': 256}	0.9528	0.9528	0.9550	0.950
25	{'max_features': 54, 'min_samples_leaf': 1024}	0.7796	0.8240	0.7584	0.756
26	{'max_features': 54, 'min_samples_leaf': 4096}	0.5000	0.5000	0.5000	0.500
27	{'max_features': 54, 'min_samples_leaf': 6147}	0.5000	0.5000	0.5000	0.500

Heldout Scores across splits

	params	mean_test_score	split0_test_score	split1_test_score	split2_test_score
0	{'max_features': 9, 'min_samples_leaf': 4}	0.9984	0.9990	0.9978	0.9984
	{'max_features': 9,				

1	'min_samples_leaf': 16}	0.9969	0.9980	0.9965	0.9963
2	{'max_features': 9, 'min_samples_leaf': 64}	0.9903	0.9934	0.9893	0.9884
3	{'max_features': 9, 'min_samples_leaf': 256}	0.9557	0.9656	0.9507	0.9509
4	{'max_features': 9, 'min_samples_leaf': 1024}	0.8285	0.7934	0.8677	0.8244
5	{'max_features': 9, 'min_samples_leaf': 4096}	0.5000	0.5000	0.5000	0.5000
6	{'max_features': 9, 'min_samples_leaf': 6147}	0.5000	0.5000	0.5000	0.5000
7	{'max_features': 18, 'min_samples_leaf': 4}	0.9983	0.9988	0.9976	0.9986
8	{'max_features': 18, 'min_samples_leaf': 16}	0.9959	0.9975	0.9944	0.9956
9	{'max_features': 18, 'min_samples_leaf': 64}	0.9895	0.9948	0.9869	0.9868
10	{'max_features': 18, 'min_samples_leaf': 256}	0.9610	0.9704	0.9574	0.9552
11	{'max_features': 18, 'min_samples_leaf': 1024}	0.8115	0.8333	0.8113	0.7898
12	{'max_features': 18, 'min_samples_leaf': 4096}	0.5000	0.5000	0.5000	0.5000
13	{'max_features': 18, 'min_samples_leaf': 6147}	0.5000	0.5000	0.5000	0.5000
14	{'max_features': 36, 'min_samples_leaf': 4}	0.9976	0.9988	0.9966	0.9974
15	{'max_features': 36, 'min_samples_leaf': 16}	0.9949	0.9968	0.9929	0.9949
	{'max_features':				

16	36, 'min_samples_leaf': 64}	0.9848	0.9927	0.9804	0.9813
17	{'max_features': 36, 'min_samples_leaf': 256}	0.9587	0.9698	0.9512	0.9552
18	{'max_features': 36, 'min_samples_leaf': 1024}	0.7927	0.8414	0.7847	0.7521
19	{'max_features': 36, 'min_samples_leaf': 4096}	0.5000	0.5000	0.5000	0.5000
20	{'max_features': 36, 'min_samples_leaf': 6147}	0.5000	0.5000	0.5000	0.5000
21	{'max_features': 54, 'min_samples_leaf': 4}	0.9931	0.9978	0.9866	0.9949
22	{'max_features': 54, 'min_samples_leaf': 16}	0.9902	0.9952	0.9847	0.9907
23	{'max_features': 54, 'min_samples_leaf': 64}	0.9797	0.9883	0.9717	0.9790
24	{'max_features': 54, 'min_samples_leaf': 256}	0.9442	0.9553	0.9377	0.9397
25	{'max_features': 54, 'min_samples_leaf': 1024}	0.7684	0.8264	0.7395	0.7392
26	{'max_features': 54, 'min_samples_leaf': 4096}	0.5000	0.5000	0.5000	0.5000
27	{'max_features': 54, 'min_samples_leaf': 6147}	0.5000	0.5000	0.5000	0.5000