

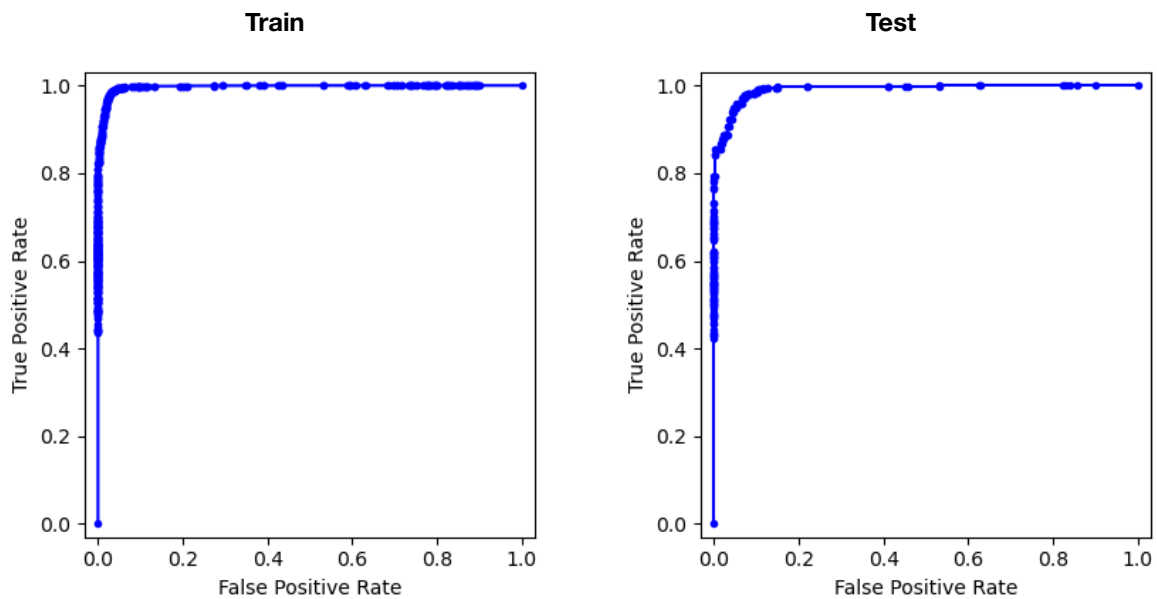
Hyperparameters of best model

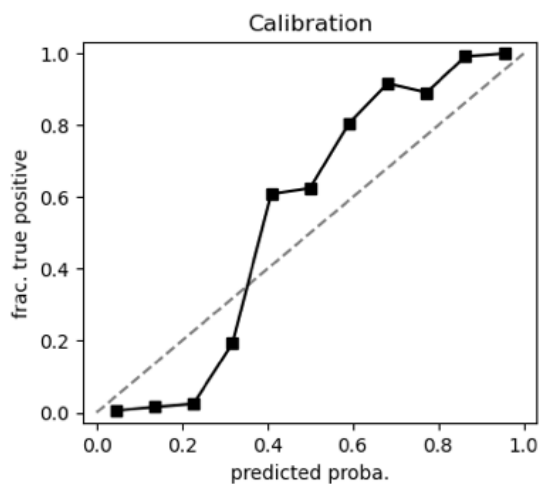
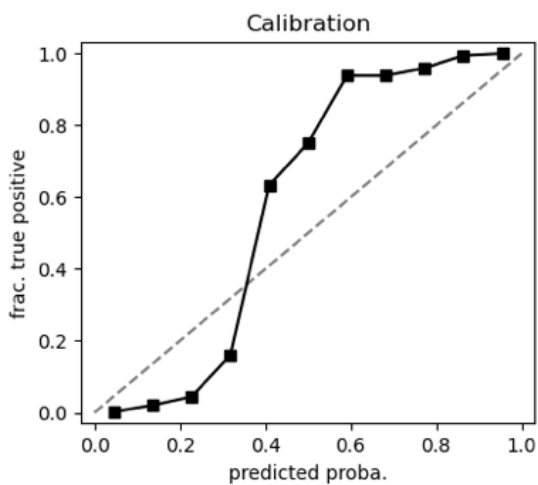
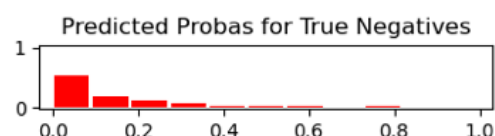
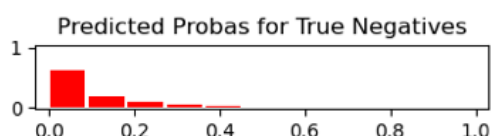
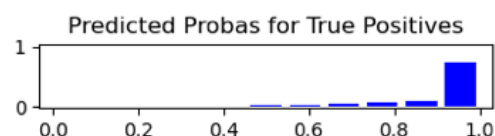
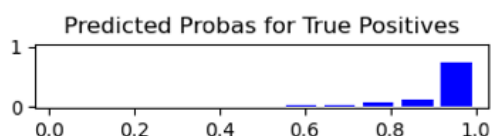
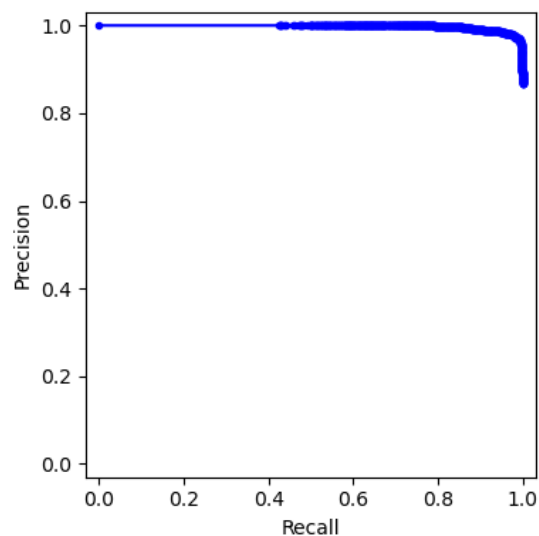
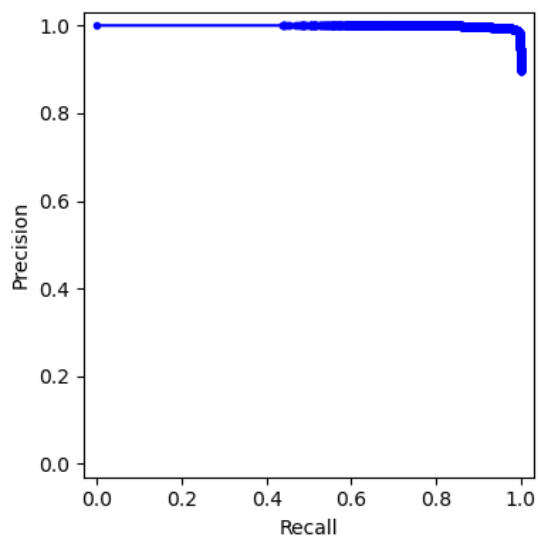
```
ThresholdClassifier(cache={}, classes=array([0, 1]),
                   clf=RandomForestClassifier(bootstrap='True',
                                              class_weight='balanced',
                                              max_features=36,
                                              min_samples_leaf=16,
                                              n_estimators=25,
                                              random_state=8675309),
                   threshold=0.5768801453735326)
```

Input Data Summary

	n_examples	n_labels_positive	frac_labels_positive
split_name			
train	6064	4791	0.7901
test	1515	1177	0.7769

Performance Plots





Predicted label	0	1
True label		
0	1244	29
1	144	4647

Predicted label	0	1
True label		
0	318	20
1	50	1127

Performance Metrics using Probabilities

	AUROC	AUPRC	average_precision	cross_entropy_base2
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split_name				
train	0.997	0.9992	0.9992	0.1411
test	0.992	0.9977	0.9977	0.1787

Performance Metrics using Thresholded Decisions

	balanced_accuracy	accuracy	f1_score	TPR	TNR	PPV	NPV
split_name							
train	0.9736	0.9715	0.9817	0.9699	0.9772	0.9938	0.8963
test	0.9492	0.9538	0.9699	0.9575	0.9408	0.9826	0.8641

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: group_split
threshold_scoring: balanced_accuracy
validation_size: 0.1
```

Settings: Data

```
data_dict_files: /Users/hezekiah/Documents/GitHub/time_series_prediction/datasets/unimib_shar_activities/v20200515/split-by=subject_id/collapsed_features_per_sequence/x_dict.json,/Users/hezekiah/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_features_per_sequence/random_forest
test_csv_files: /Users/hezekiah/Documents/GitHub/time_series_prediction/datasets/unimib_shar_activities/v20200515/split-by=subject_id/collapsed_features_per_sequence/x_test.csv,/Users/hezekiah/Documents/GitHub/time_series_prediction/datasets/unimib_shar_activities/v20200515/split-by=subject_id/collapsed_features_per_sequence/y_test.csv
train_csv_files: /Users/hezekiah/Documents/GitHub/time_series_prediction/datasets/unimib_shar_activities/v20200515/split-by=subject_id/collapsed_features_per_sequence/x_train.csv,/Users/hezekiah/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	0.9996	0.9996	0.9995
2	{'max_features': 9, 'min_samples_leaf': 64}	0.9965	0.9966	0.9960	0.9965
3	{'max_features': 9, 'min_samples_leaf': 256}	0.9745	0.9765	0.9723	0.9747
4	{'max_features': 9, 'min_samples_leaf': 1024}	0.9015	0.9049	0.8975	0.9021
5	{'max_features': 9, 'min_samples_leaf': 4096}	0.5000	0.5000	0.5000	0.5000
6	{'max_features': 9, 'min_samples_leaf': 5458}	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}	0.9992	0.9995	0.9992	0.9990
9	{'max_features': 18, 'min_samples_leaf': 64}	0.9956	0.9962	0.9946	0.9960
10	{'max_features': 18, 'min_samples_leaf': 256}	0.9740	0.9762	0.9701	0.9756
11	{'max_features': 18, 'min_samples_leaf': 1024}	0.9014	0.9083	0.8974	0.8985
12	{'max_features': 18, 'min_samples_leaf': 4096}	0.5000	0.5000	0.5000	0.5000
13	{'max_features': 18, 'min_samples_leaf': 5458}	0.5000	0.5000	0.5000	0.5000
14	{'max_features': 36, 'min_samples_leaf': 4}	1.0000	1.0000	1.0000	0.9995
15	{'max_features': 36, 'min_samples_leaf': 16}	0.9991	0.9992	0.9991	0.9990
	{'max_features':				

16	{'max_features': 36, 'min_samples_leaf': 64}	0.9948	0.9966	0.9931	0.9946
17	{'max_features': 36, 'min_samples_leaf': 256}	0.9703	0.9736	0.9642	0.9733
18	{'max_features': 36, 'min_samples_leaf': 1024}	0.8797	0.8751	0.8825	0.8814
19	{'max_features': 36, 'min_samples_leaf': 4096}	0.5000	0.5000	0.5000	0.5000
20	{'max_features': 36, 'min_samples_leaf': 5458}	0.5000	0.5000	0.5000	0.5000
21	{'max_features': 54, 'min_samples_leaf': 4}	0.9999	0.9999	0.9999	0.9999
22	{'max_features': 54, 'min_samples_leaf': 16}	0.9980	0.9988	0.9977	0.9975
23	{'max_features': 54, 'min_samples_leaf': 64}	0.9904	0.9933	0.9881	0.9897
24	{'max_features': 54, 'min_samples_leaf': 256}	0.9570	0.9652	0.9481	0.9576
25	{'max_features': 54, 'min_samples_leaf': 1024}	0.8558	0.8536	0.8634	0.8505
26	{'max_features': 54, 'min_samples_leaf': 4096}	0.5000	0.5000	0.5000	0.5000
27	{'max_features': 54, 'min_samples_leaf': 5458}	0.5000	0.5000	0.5000	0.5000

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}	0.9838	0.9599	0.9962	0.9954
	{'max_features': 9,				

1	'min_samples_leaf': 16}	0.9793	0.9545	0.9976	0.9858
2	{'max_features': 9, 'min_samples_leaf': 64}	0.9707	0.9415	0.9950	0.9756
3	{'max_features': 9, 'min_samples_leaf': 256}	0.9275	0.8412	0.9915	0.9497
4	{'max_features': 9, 'min_samples_leaf': 1024}	0.9249	0.8636	0.9744	0.9368
5	{'max_features': 9, 'min_samples_leaf': 4096}	0.5000	0.5000	0.5000	0.5000
6	{'max_features': 9, 'min_samples_leaf': 5458}	0.5000	0.5000	0.5000	0.5000
7	{'max_features': 18, 'min_samples_leaf': 4}	0.9846	0.9756	0.9921	0.9862
8	{'max_features': 18, 'min_samples_leaf': 16}	0.9844	0.9791	0.9936	0.9806
9	{'max_features': 18, 'min_samples_leaf': 64}	0.9754	0.9676	0.9893	0.9692
10	{'max_features': 18, 'min_samples_leaf': 256}	0.9415	0.8985	0.9826	0.9433
11	{'max_features': 18, 'min_samples_leaf': 1024}	0.9160	0.8774	0.9821	0.8885
12	{'max_features': 18, 'min_samples_leaf': 4096}	0.5000	0.5000	0.5000	0.5000
13	{'max_features': 18, 'min_samples_leaf': 5458}	0.5000	0.5000	0.5000	0.5000
14	{'max_features': 36, 'min_samples_leaf': 4}	0.9823	0.9713	0.9936	0.9820
15	{'max_features': 36, 'min_samples_leaf': 16}	0.9851	0.9760	0.9937	0.9856
	{'max_features':				

16	{ 'min_samples_leaf': 36, 'max_features': 64}	0.9729	0.9754	0.9861	0.9572
17	{ 'min_samples_leaf': 36, 'max_features': 256}	0.9425	0.9127	0.9774	0.9374
18	{ 'min_samples_leaf': 36, 'max_features': 1024}	0.9065	0.8911	0.9675	0.8609
19	{ 'min_samples_leaf': 36, 'max_features': 4096}	0.5000	0.5000	0.5000	0.5000
20	{ 'min_samples_leaf': 36, 'max_features': 5458}	0.5000	0.5000	0.5000	0.5000
21	{ 'min_samples_leaf': 54, 'max_features': 4}	0.9737	0.9775	0.9918	0.9518
22	{ 'min_samples_leaf': 54, 'max_features': 16}	0.9725	0.9772	0.9899	0.9505
23	{ 'min_samples_leaf': 54, 'max_features': 64}	0.9691	0.9639	0.9825	0.9610
24	{ 'min_samples_leaf': 54, 'max_features': 256}	0.9265	0.8900	0.9602	0.9293
25	{ 'min_samples_leaf': 54, 'max_features': 1024}	0.8848	0.8503	0.9841	0.8198
26	{ 'min_samples_leaf': 54, 'max_features': 4096}	0.5000	0.5000	0.5000	0.5000
27	{ 'min_samples_leaf': 54, 'max_features': 5458}	0.5000	0.5000	0.5000	0.5000