



IoT Analytics

CONFUSION MATRICES AND PERFORMANCE MEASURES

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C5.0 (Building)

Overall Statistics

Accuracy : 0.9998

95% CI : (0.9988, 1)

No Information Rate : 0.4612

P-Value [Acc > NIR] : < 2.2e-16

Kappa : 0.9997

Mcnemar's Test P-Value : NA

Statistics by Class:

	Class: TI	Class: TD	Class: TC
Sensitivity	0.9992	1.0000	1.0000
Specificity	1.0000	0.9997	1.0000
Pos Pred Value	1.0000	0.9992	1.0000
Neg Pred Value	0.9997	1.0000	1.0000
Prevalence	0.2814	0.2574	0.4612
Detection Rate	0.2812	0.2574	0.4612
Detection Prevalence	0.2812	0.2576	0.4612
Balanced Accuracy	0.9996	0.9999	1.0000

Confusion Matrix and Statistics

	Reference			
Prediction	TI	TD	TC	
TI	1308	0	0	
TD	1	1197	0	
TC	0	0	2145	

C5.0 (Floor)

Overall Statistics

Accuracy : 0.9815

95% CI : (0.9772, 0.9852)

No Information Rate : 0.2569

P-Value [Acc > NIR] : < 2.2e-16

Kappa : 0.9757

Mcnemar's Test P-Value : NA

Statistics by Class:

	Class: 0	Class: 1	Class: 2	Class: 3	Class: 4
Sensitivity	0.9916	0.9766	0.9682	0.9888	0.99213
Specificity	0.9947	0.9945	0.9932	0.9937	0.99956
Pos Pred Value	0.9823	0.9840	0.9779	0.9812	0.98438
Neg Pred Value	0.9975	0.9919	0.9902	0.9963	0.99978
Prevalence	0.2292	0.2569	0.2363	0.2503	0.02731
Detection Rate	0.2273	0.2509	0.2288	0.2475	0.02709
Detection Prevalence	0.2313	0.2550	0.2339	0.2522	0.02752
Balanced Accuracy	0.9931	0.9855	0.9807	0.9913	0.99584

Confusion Matrix and Statistics

	Reference				
Prediction	0	1	2	3	4
0	1057	16	3	0	0
1	6	1167	12	1	0
2	3	10	1064	10	1
3	0	2	20	1151	0
4	0	0	0	2	126

k-Nearest Neighbors (Building)

Overall Statistics

Accuracy : 0.9991

95% CI : (0.9978, 0.9998)

No Information Rate : 0.4612

P-Value [Acc > NIR] : < 2.2e-16

Kappa : 0.9987

Mcnemar's Test P-Value : NA

Statistics by Class:

	Class: TI	Class: TD	Class: TC
Sensitivity	0.9985	1.0000	0.9991
Specificity	0.9994	0.9997	0.9996
Pos Pred Value	0.9985	0.9992	0.9995
Neg Pred Value	0.9994	1.0000	0.9992
Prevalence	0.2814	0.2574	0.4612
Detection Rate	0.2810	0.2574	0.4608
Detection Prevalence	0.2814	0.2576	0.4610
Balanced Accuracy	0.9989	0.9999	0.9993

Confusion Matrix and Statistics

	Reference		
Prediction	TI	TD	TC
TI	1307	0	2
TD	1	1197	0
TC	1	0	2143

k-Nearest Neighbors (Floor)

Overall Statistics

Accuracy : 0.9884

95% CI : (0.9849, 0.9913)

No Information Rate : 0.2569

P-Value [Acc > NIR] : < 2.2e-16

Kappa : 0.9848

McNemar's Test P-Value : NA

Statistics by Class:

	Class: 0	Class: 1	Class: 2	Class: 3	Class: 4
Sensitivity	0.9981	0.9866	0.9745	0.9957	0.97638
Specificity	0.9978	0.9959	0.9963	0.9946	1.00000
Pos Pred Value	0.9925	0.9883	0.9880	0.9839	1.00000
Neg Pred Value	0.9994	0.9954	0.9922	0.9986	0.99934
Prevalence	0.2292	0.2569	0.2363	0.2503	0.02731
Detection Rate	0.2288	0.2535	0.2303	0.2492	0.02666
Detection Prevalence	0.2305	0.2565	0.2331	0.2533	0.02666
Balanced Accuracy	0.9979	0.9913	0.9854	0.9951	0.98819

Confusion Matrix and Statistics

	Reference					
Prediction	0	1	2	3	4	
0	1064	4	4	0	0	
1	2	1179	11	1	0	
2	0	7	1071	4	2	
3	0	5	13	1159	1	
4	0	0	0	0	124	

Random Forest (Building)

Overall Statistics

Accuracy : 1

95% CI : (0.9992, 1)

No Information Rate : 0.4612

P-Value [Acc > NIR] : < 2.2e-16

Kappa : 1

Mcnemar's Test P-Value : NA

Statistics by Class:

	Class: TI	Class: TD	Class: TC
Sensitivity	1.0000	1.0000	1.0000
Specificity	1.0000	1.0000	1.0000
Pos Pred Value	1.0000	1.0000	1.0000
Neg Pred Value	1.0000	1.0000	1.0000
Prevalence	0.2814	0.2574	0.4612
Detection Rate	0.2814	0.2574	0.4612
Detection Prevalence	0.2814	0.2574	0.4612
Balanced Accuracy	1.0000	1.0000	1.0000

Confusion Matrix and Statistics

	Reference			
Prediction	TI	TD	TC	
TI	1309	0	0	
TD	0	1197	0	
TC	0	0	2145	

Random Forest (Floor)

Overall Statistics

Accuracy : 0.9987

95% CI : (0.9972, 0.9995)

No Information Rate : 0.2569

P-Value [Acc > NIR] : < 2.2e-16

Kappa : 0.9983

McNemar's Test P-Value : NA

Statistics by Class:

	Class: 0	Class: 1	Class: 2	Class: 3	Class: 4
Sensitivity	0.9981	0.9983	0.9991	1.0000	0.99213
Specificity	0.9997	0.9994	0.9992	1.0000	1.00000
Pos Pred Value	0.9991	0.9983	0.9973	1.0000	1.00000
Neg Pred Value	0.9994	0.9994	0.9997	1.0000	0.99978
Prevalence	0.2292	0.2569	0.2363	0.2503	0.02731
Detection Rate	0.2288	0.2565	0.2361	0.2503	0.02709
Detection Prevalence	0.2290	0.2569	0.2367	0.2503	0.02709
Balanced Accuracy	0.9989	0.9989	0.9991	1.0000	0.99606

Confusion Matrix and Statistics

	Reference				
Prediction	0	1	2	3	4
0	1064	1	0	0	0
1	1	1193	1	0	0
2	1	1	1098	0	1
3	0	0	0	1164	0
4	0	0	0	0	126

eXtreme Gradient Boosting (Floor)

Overall Statistics

Accuracy : 0.9927

95% CI : (0.9898, 0.9949)

No Information Rate : 0.2569

P-Value [Acc > NIR] : < 2.2e-16

Kappa : 0.9904

Mcnemar's Test P-Value : NA

Statistics by Class:

	Class: 0	Class: 1	Class: 2	Class: 3	Class: 4
Sensitivity	0.9944	0.9925	0.9900	0.9966	0.96850
Specificity	0.9986	0.9971	0.9969	0.9977	1.00000
Pos Pred Value	0.9953	0.9916	0.9900	0.9932	1.00000
Neg Pred Value	0.9983	0.9974	0.9969	0.9989	0.99912
Prevalence	0.2292	0.2569	0.2363	0.2503	0.02731
Detection Rate	0.2279	0.2550	0.2339	0.2494	0.02645
Detection Prevalence	0.2290	0.2571	0.2363	0.2511	0.02645
Balanced Accuracy	0.9965	0.9948	0.9934	0.9971	0.98425

Confusion Matrix and Statistics

	Reference				
Prediction	0	1	2	3	4
0	1060	4	1	0	0
1	5	1186	5	0	0
2	1	5	1088	4	1
3	0	0	5	1160	3
4	0	0	0	0	123

k-Nearest Neighbors (Longitude)

RMSE	Rsquared	MAE
3.7059033	0.9991184	1.6075825

k-Nearest Neighbors (Latitude)

RMSE	Rsquared	MAE
4.5231326	0.9955284	1.6445939

Random Forest (Longitude)

RMSE	Rsquared	MAE
2.7761468	0.9995129	1.4698713

Random Forest (Latitude)


RMSE	Rsquared	MAE
2.5644869	0.9985904	1.3633150

eXtreme Gradient Boosting(Longitude)

RMSE	Rsquared	MAE
5.5536110	0.9980223	3.6622963

eXtreme Gradient Boosting(Latitude)

RMSE	Rsquared	MAE
5.1311407	0.9944272	3.4630194

A light blue brushstroke graphic that starts as a series of small, irregular strokes on the left and gradually merges into a solid, rectangular block on the right. The strokes are layered, creating a sense of movement and depth.

Thank you!