IoT Analytics

MODELS

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C5.0 (Building)

13956 samples
141 predictor
3 classes: 'TI', 'TD', 'TC'

No pre-processing
Resampling: Cross-Validated (10 fold, repeated 1 times)
Summary of sample sizes: 12560, 12560, 12560, 12561, 12561, 12562, ...
Resampling results across tuning parameters:

winnow	Accuracy	Kappa
FALSE	0.9991401	0.9986609
TRUE	0.9992118	0.9987726

Tuning parameter 'trials' was held constant at a value of 1
Tuning
parameter 'model' was held constant at a value of tree
Kappa was used to select the optimal model using the largest value.
The final values used for the model were trials = 1, model = tree and winnow = TRUE.

C5.0 (Floor)

13956 samples
141 predictor
5 classes: '0', '1', '2', '3', '4'

No pre-processing
Resampling: Cross-Validated (10 fold, repeated 1 times)
Summary of sample sizes: 12561, 12562, 12559, 12562, 12561, 12560, ...
Resampling results across tuning parameters:

winnow	Accuracy	Kappa
FALSE	0.9506290	0.9352194
TRUE	0.9537827	0.9393481

Tuning parameter 'trials' was held constant at a value of 1
Tuning
parameter 'model' was held constant at a value of tree
Kappa was used to select the optimal model using the largest value.
The final values used for the model were trials = 1, model = tree and winnow = TRUE.

k-Nearest Neighbors (Building)

13956 samples
141 predictor
3 classes: 'TI', 'TD', 'TC'

Pre-processing: centered (141), scaled (141)
Resampling: Cross-Validated (10 fold, repeated 1 times)
Summary of sample sizes: 12560, 12560, 12560, 12561, 12561, 12562, ...
Resampling results across tuning parameters:

k	Accuracy	Kappa
5	0.9996417	0.9994417
7	0.9992834	0.9988834
9	0.9991400	0.9986598

Accuracy was used to select the optimal model using the largest value.
The final value used for the model was k = 5.

k-Nearest Neighbors (Floor)

13956 samples
  141 predictor
    5 classes: '0', '1', '2', '3', '4'

Pre-processing: centered (141), scaled (141)
Resampling: Cross-Validated (10 fold, repeated 1 times)
Summary of sample sizes: 12560, 12559, 12560, 12561, 12561, 12561, ...
Resampling results across tuning parameters:

k	Accuracy	Kappa
5	0.9836624	0.9785620
7	0.9797929	0.9734833
9	0.9756375	0.9680288

Accuracy was used to select the optimal model using the largest value.
The final value used for the model was k = 5.

Random Forest (Building)

13956 samples
  141 predictor
    3 classes: 'TI', 'TD', 'TC'

No pre-processing
Resampling: Cross-Validated (10 fold, repeated 1 times)
Summary of sample sizes: 12561, 12559, 12560, 12560, 12561, 12560, ...
Resampling results across tuning parameters:

mtry	Accuracy	Kappa
2	0.9997851	0.9996652
71	0.9998566	0.9997767
141	0.9995700	0.9993303

Accuracy was used to select the optimal model using the largest value.
The final value used for the model was mtry = 71.

Random Forest (Floor)

13956 samples
  141 predictor
    5 classes: '0', '1', '2', '3', '4'

No pre-processing
Resampling: Cross-Validated (10 fold, repeated 1 times)
Summary of sample sizes: 12560, 12559, 12560, 12561, 12561, 12561, ...
Resampling results across tuning parameters:

mtry	Accuracy	Kappa
2	0.9907566	0.9878690
71	0.9896820	0.9864587
141	0.9841650	0.9792201

Accuracy was used to select the optimal model using the largest value.
The final value used for the model was mtry = 2.

eXtreme Gradient Boosting (Floor)

13956 samples
141 predictor
5 classes: '0', '1', '2', '3', '4'

No pre-processing
Resampling: Cross-Validated (10 fold, repeated 1 times)
Summary of sample sizes: 12560, 12559, 12560, 12561, 12561, 12561,
...
Resampling results across tuning parameters:

max_depth	nrounds	Accuracy	Kappa
9	125	0.9949124	0.9933238
9	150	0.9950557	0.9935123
9	175	0.9949840	0.9934183
10	125	0.9946257	0.9929483
10	150	0.9948407	0.9932304
10	175	0.9948407	0.9932304
11	125	0.9944106	0.9926657
11	150	0.9944107	0.9926657
11	175	0.9944824	0.9927600

Tuning parameter 'eta' was held constant at a value of 0.1
Tuning parameter
held constant at a value of 1
Tuning parameter 'subsample' was held constant at a value of 1
Accuracy was used to select the optimal model using the largest value.
The final values used for the model were nrounds = 150, max_depth = 9, eta = 0.1, gamma = 0, colsample_bytree = 0.3, min_child_weight = 1 and subsample = 1.

k-Nearest Neighbors (Longitude)

13957 samples
141 predictor

Pre-processing: centered (141), scaled (141)
Resampling: Cross-Validated (10 fold, repeated 1 times)
Summary of sample sizes: 12561, 12562, 12562, 12561, 12562, 12562, ...
Resampling results across tuning parameters:

k	RMSE	Rsquared	MAE
5	5.033938	0.9983665	2.266666
7	5.599340	0.9979805	2.731893
9	6.074460	0.9976251	3.125349

RMSE was used to select the optimal model using the smallest value.
The final value used for the model was k = 5.

k-Nearest Neighbors (Latitude)

13957 samples
141 predictor

Pre-processing: centered (141), scaled (141)
Resampling: Cross-Validated (10 fold, repeated 1 times)
Summary of sample sizes: 12560, 12560, 12563, 12561, 12561, 12563, ...
Resampling results across tuning parameters:

k	RMSE	Rsquared	MAE
5	4.571480	0.9953469	2.089240
7	4.968835	0.9945310	2.480599
9	5.341282	0.9937226	2.810699

RMSE was used to select the optimal model using the smallest value.
The final value used for the model was k = 5.

Random Forest (Longitude)

13957 samples
141 predictor

No pre-processing
Resampling: Cross-Validated (10 fold, repeated 1 times)
Summary of sample sizes: 12561, 12562, 12562, 12561, 12562, 12562, ...
Resampling results across tuning parameters:

mtry	RMSE	Rsquared	MAE
2	13.490099	0.9904799	7.845932
71	4.757383	0.9985719	2.849726
141	5.108146	0.9983343	2.863603

RMSE was used to select the optimal model using the smallest value.
The final value used for the model was mtry = 71.

Random Forest (Latitude)

13957 samples
141 predictor

No pre-processing
Resampling: Cross-Validated (10 fold, repeated 1 times)
Summary of sample sizes: 12560, 12560, 12563, 12561, 12561, 12563, ...
Resampling results across tuning parameters:

mtry	RMSE	Rsquared	MAE
2	9.313047	0.9845763	5.460495
71	4.021065	0.9965107	2.430801
141	4.309765	0.9959600	2.502501

RMSE was used to select the optimal model using the smallest value.
The final value used for the model was mtry = 71.

eXtreme Gradient Boosting(Latitude)

13957 samples
141 predictor

No pre-processing
Resampling: Cross-Validated (10 fold, repeated 1 times)
Summary of sample sizes: 12560, 12560, 12563, 12561, 12561, 12563, ...
Resampling results across tuning parameters:

max_depth	colsample_bytree	nrounds	RMSE	Rsquared	MAE
10	0.5	100	130.318261	0.9664120	129.620026
10	0.5	200	5.180509	0.9943461	3.577847

Tuning parameter 'eta' was held constant at a value of 0.1
Tuning parameter
was held constant at a value of 1
Tuning parameter 'subsample' was held
constant at a value of 1
RMSE was used to select the optimal model using the smallest value.
The final values used for the model were nrounds = 200, max_depth = 10, eta =
0.1, gamma = 0, colsample_bytree = 0.7, min_child_weight = 1 and subsample = 1.

eXtreme Gradient Boosting(Longitude)

13957 samples
  141 predictor

No pre-processing
Resampling: Cross-Validated (10 fold, repeated 1 times)
Summary of sample sizes: 12561, 12562, 12562, 12561, 12562, 12562, ...
Resampling results:

RMSE	Rsquared	MAE
5.896823	0.9977734	3.807649

Tuning parameter 'nrounds' was held constant at a value of 200
Tuning
 held constant at a value of 1
Tuning parameter 'subsample' was held constant at a value of 1

Thank you!