M5\_RF

2020-06-02 23:58:25 (INFO) TrainVectorClassifier: Reading vector file 1/1

2020-06-02 23:58:26 (WARNING) **TrainVectorClassifier:** The validation set is empty. The performance estimation is done using the input training set in this case.

2020-06-02 23:58:26 (INFO) TrainVectorClassifier: Computing model file : C:/Users/susar/OneDrive - Universidade de Lisboa/0\_Mestrado SIG/6\_DRM/5\_Projecto final/Classificacao/Modelo5\_PCA\_IV/M5\_result\_RF

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: Predicted list size : 58557

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: ValidationLabeledListSample size : 58557

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: Training performances:

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: Confusion matrix (rows = reference labels, columns = produced labels):

[100] [200] [300] [301] [400] [401] [500] [600] [700] [800] [900]

[100] 13386 1 2 0 0 0 10 1 0 26 0

[200] 0 887 27 0 0 468 476 2 287 0 7

[300] 0 0 9171 0 456 115 0 9 60 87 0

[301] 0 249 415 82 36 673 7 134 152 0 159

[400] 0 0 556 0 4864 0 0 27 0 57 8

[401] 0 146 0 11 2 2579 0 0 649 0 397

[500] 2 216 7 0 1 115 1888 2 502 0 0

[600] 0 0 209 0 143 0 0 1103 0 4 3

[700] 0 240 111 2 117 430 220 27 7135 0 451

[800] 5 0 214 0 230 2 0 18 0 1961 6

[900] 0 1 2 0 37 442 0 17 296 0 5717

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: Precision of class [100] vs all: 0.999477

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: Recall of class [100] vs all: 0.997021

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: F-score of class [100] vs all: 0.998248

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: Precision of class [200] vs all: 0.50977

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: Recall of class [200] vs all: 0.411792

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: F-score of class [200] vs all: 0.455573

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: Precision of class [300] vs all: 0.855983

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: Recall of class [300] vs all: 0.926551

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: F-score of class [300] vs all: 0.88987

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: Precision of class [301] vs all: 0.863158

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: Recall of class [301] vs all: 0.0429995

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: F-score of class [301] vs all: 0.0819181

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: Precision of class [400] vs all: 0.826368

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: Recall of class [400] vs all: 0.882438

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: F-score of class [400] vs all: 0.853483

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: Precision of class [401] vs all: 0.534619

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: Recall of class [401] vs all: 0.681554

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: F-score of class [401] vs all: 0.59921

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: Precision of class [500] vs all: 0.725875

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: Recall of class [500] vs all: 0.690816

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: F-score of class [500] vs all: 0.707912

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: Precision of class [600] vs all: 0.823134

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: Recall of class [600] vs all: 0.754446

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: F-score of class [600] vs all: 0.787295

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: Precision of class [700] vs all: 0.785706

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: Recall of class [700] vs all: 0.817016

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: F-score of class [700] vs all: 0.801055

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: Precision of class [800] vs all: 0.918501

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: Recall of class [800] vs all: 0.805008

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: F-score of class [800] vs all: 0.858018

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: Precision of class [900] vs all: 0.847214

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: Recall of class [900] vs all: 0.877918

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: F-score of class [900] vs all: 0.862293

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: Global performance, Kappa index: 0.80585

2020-06-02 23:58:36 (INFO) TrainVectorClassifier: Execution took 10.241 sec

M5\_RF

2020-06-03 19:12:15 (INFO) **ImageClassifier**: Default RAM limit for OTB is 256 MB

2020-06-03 19:12:15 (INFO) ImageClassifier: GDAL maximum cache size is 403 MB

2020-06-03 19:12:15 (INFO) ImageClassifier: OTB will use at most 4 threads

2020-06-03 19:12:16 (INFO) ImageClassifier: Loading model

2020-06-03 19:12:16 (INFO) ImageClassifier: Model loaded

2020-06-03 19:12:16 (INFO) ImageClassifier: Input image normalization activated.

2020-06-03 19:12:16 (INFO) ImageClassifier: mean used: [-3.6985e-09, 1.0736e-09, 5.01497e-11, 1.32124, 0.324114, -0.0731166, 0.214115]

2020-06-03 19:12:16 (INFO) ImageClassifier: standard deviation used: [1, 1, 1, 0.296582, 0.144401, 0.119873, 0.0912106]

2020-06-03 19:12:16 (WARNING) ImageClassifier: Probability map requested but the classifier doesn't support it!

2020-06-03 19:12:16 (WARNING) ImageClassifier: Check filename: no extension detected, using TIF as default.

2020-06-03 19:14:19 (INFO) ImageClassifier: **Execution took 122.421 sec**

M5\_RF

2020-06-03 22:05:41 (INFO) **ComputeConfusionMatrix**: Default RAM limit for OTB is 256 MB

2020-06-03 22:05:41 (INFO) ComputeConfusionMatrix: GDAL maximum cache size is 403 MB

2020-06-03 22:05:41 (INFO) ComputeConfusionMatrix: OTB will use at most 4 threads

2020-06-03 22:05:41 (INFO) ComputeConfusionMatrix: Number of stream divisions : 3

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: mapOfClassesRef[100] = 0

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: mapOfClassesRef[200] = 1

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: mapOfClassesRef[300] = 2

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: mapOfClassesRef[301] = 3

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: mapOfClassesRef[400] = 4

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: mapOfClassesRef[401] = 5

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: mapOfClassesRef[500] = 6

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: mapOfClassesRef[600] = 7

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: mapOfClassesRef[700] = 8

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: mapOfClassesRef[800] = 9

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: mapOfClassesRef[900] = 10

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: mapOfClassesProd[100] = 0

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: mapOfClassesProd[200] = 1

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: mapOfClassesProd[255] = 2

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: Reference class labels ordered according to the rows of the output confusion matrix: #Reference labels (rows):100,200,300,301,400,401,500,600,700,800,900

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: Produced class labels ordered according to the columns of the output confusion matrix: #Produced labels (columns):100,200,255

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: Confusion matrix (rows = reference labels, columns = produced labels):

[100] [200] [300] [301] [400] [401] [500] [600] [700] [800] [900]

[100] 4451 2 0 0 0 0 0 0 0 0 0

[200] 0 217 0 0 0 0 0 0 0 0 0

[300] 0 0 0 0 0 0 0 0 0 0 0

[301] 0 6 0 0 0 0 0 0 0 0 0

[400] 0 0 0 0 0 0 0 0 0 0 0

[401] 0 107 0 0 0 0 0 0 0 0 0

[500] 29 66 0 0 0 0 0 0 0 0 0

[600] 0 0 0 0 0 0 0 0 0 0 0

[700] 0 385 0 0 0 0 0 0 0 0 0

[800] 6 2 0 0 0 0 0 0 0 0 0

[900] 0 3 0 0 0 0 0 0 0 0 0

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: Precision of class [100] vs all: 0.992198

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: Recall of class [100] vs all: 0.999551

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: F-score of class [100] vs all: 0.995861

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: Precision of class [200] vs all: 0.275381

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: Recall of class [200] vs all: 1

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: F-score of class [200] vs all: 0.431841

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: Precision of class [300] vs all: 0

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: Recall of class [300] vs all: 0

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: F-score of class [300] vs all: 0

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: Precision of class [301] vs all: 0

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: Recall of class [301] vs all: 0

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: F-score of class [301] vs all: 0

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: Precision of class [400] vs all: 0

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: Recall of class [400] vs all: 0

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: F-score of class [400] vs all: 0

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: Precision of class [401] vs all: 0

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: Recall of class [401] vs all: 0

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: F-score of class [401] vs all: 0

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: Precision of class [500] vs all: 0

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: Recall of class [500] vs all: 0

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: F-score of class [500] vs all: 0

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: Precision of class [600] vs all: 0

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: Recall of class [600] vs all: 0

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: F-score of class [600] vs all: 0

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: Precision of class [700] vs all: 0

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: Recall of class [700] vs all: 0

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: F-score of class [700] vs all: 0

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: Precision of class [800] vs all: 0

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: Recall of class [800] vs all: 0

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: F-score of class [800] vs all: 0

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: Precision of class [900] vs all: 0

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: Recall of class [900] vs all: 0

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: F-score of class [900] vs all: 0

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: Precision of the different classes: [0.992198, 0.275381, 0, 0, 0, 0, 0, 0, 0, 0, 0]

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: Recall of the different classes: [0.999551, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0]

2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: F-score of the different classes: [0.995861, 0.431841, 0, 0, 0, 0, 0, 0, 0, 0, 0]

**2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: Kappa index: 0.583193**

**2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: Overall accuracy index: 0.885097**

**2020-06-03 22:05:42 (INFO) ComputeConfusionMatrix: Execution took 0.454 sec**