Copyright (c) 2019-2022 Brainome, Inc. All Rights Reserved.

Licensed to: Leo Milea (Evaluation)

Expiration Date: 2022-07-31 80 days left

Maximum File Size: 30 GB

Maximum Instances: unlimited

Maximum Attributes: unlimited

Maximum Classes: unlimited

Connected to: daimensions.brainome.ai (local execution)

**Command:**

brainome -v train\_data.csv

Start Time: 05/12/2022, 19:09 PDT

Cleaning... done. 4m 22s

Splitting into training and validation... done. 3m 33s

Pre-training measurements... done. 12m 41s

**Pre-training Measurements**

Data:

Input: train\_data.csv

Target Column: 1.000000000000000000e+00

Number of instances: 5007

Number of attributes: 12288 out of 12288

Number of classes: 2

Class Balance:

1.000000000000000000e+00: 77.77%

0.000000000000000000e+00: 22.23%

Learnability:

Best guess accuracy: 77.77%

Data Sufficiency: Maybe enough data to generalize. [yellow]

Capacity Progression at [ 5%, 10%, 20%, 40%, 80%, 100% ]

8, 9, 10, 10, 11, 11

RF NN DT SVM

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Expected Training Accuracy: 100.00% ---- 100.00% ----

Expected Validation Accuracy: 93.77% ---- 66.65% ----

Expected Model Capacity (bits): 156 135191 1670 12289

Expected Gen. Ratio (bits/bit): 32.10 0.03 2.29 0.24

Recommendations:

Warning: Attribute count greater than number of instances. Collect more data to get better results.

If predictor accuracy is insufficient, try using the effort option -e with a value of 5 or more to increase training time.

Building RF model... done. 5m

Compiling RF predictor... done. 1s

Validating RF predictor... done. 2m 27s

Building SVM classifier... done. 1m 20s

Compiling SVM predictor... done. 1s

Validating SVM predictor... done. 2m 21s

Building DT classifier... done. 42s

Compiling DT predictor... done. 1s

Validating DT predictor... done. 2m 24s

Architecting NN model... done. 10m 51s

Priming NN model... done. 3m 10s

Compiling NN predictor... done. 1s

Validating NN predictor... done. 2m 47s

**Predictor:**

Classifier Type: Random Forest

System Type: Binary classifier

Training / Validation Split: 60% : 40%

Accuracy:

Best-guess accuracy: 77.77%

Training accuracy: 100.00% (3003/3003 correct)

Validation Accuracy: 94.41% (1892/2004 correct)

Combined Model Accuracy: 97.76% (4895/5007 correct)

Model Capacity (MEC): 75 bits

Generalization Ratio: 30.59 bits/bit

Percent of Data Memorized: 7.23%

Resilience to Noise: -1.60 dB

Training Confusion Matrix:

Actual | Predicted

------ | ---------

1.000000000000000000e+00 | 2336 0

0.000000000000000000e+00 | 0 667

Validation Confusion Matrix:

Actual | Predicted

------ | ---------

1.000000000000000000e+00 | 1523 35

0.000000000000000000e+00 | 77 369

Training Accuracy by Class:

1.000000000000000000e+00 | TP FP TN FN TPR TNR PPV NPV F1 TS

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1.000000000000000000e+00 | 2336 0 667 0 100.00% 100.00% 100.00% 100.00% 100.00% 100.00%

0.000000000000000000e+00 | 667 0 2336 0 100.00% 100.00% 100.00% 100.00% 100.00% 100.00%

Validation Accuracy by Class:

1.000000000000000000e+00 | TP FP TN FN TPR TNR PPV NPV F1 TS

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1.000000000000000000e+00 | 1523 77 369 35 97.75% 82.74% 95.19% 91.34% 96.45% 93.15%

0.000000000000000000e+00 | 369 35 1523 77 82.74% 97.75% 91.34% 95.19% 86.82% 76.72%

Attribute Ranking:

Feature | Relative Importance

0.000000000000000000e+00 : 0.0705

5.254974961280822754e-01 : 0.0681

7.450796365737915039e-01 : 0.0567

7.058848142623901367e-01 : 0.0522

6.164457201957702637e-01 : 0.0493

6.768453717231750488e-01 : 0.0348

7.544466257095336914e-01 : 0.0305

8.112996220588684082e-01 : 0.0283

2.707715332508087158e-01 : 0.0282

7.104732990264892578e-01 : 0.0181

3.434658944606781006e-01 : 0.0172

2.565656304359436035e-01 : 0.0168

7.227932810783386230e-01 : 0.0139

5.360794067382812500e-01 : 0.0133

7.546256184577941895e-01 : 0.0116

4.169561266899108887e-01 : 0.0115

7.117559909820556641e-01 : 0.0112

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5.996949672698974609e-01 : 0.0091

6.337778568267822266e-01 : 0.0091

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**AutoML Summary:**

RF\* NN DT SVM

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Best-guess Accuracy: 77.77% 77.77% 77.77% 77.77%

Training Accuracy: 100.00% 77.78% 100.00% 94.20%

Validation Accuracy: 94.41% 77.74% 66.61% 92.86%

Model Capacity (bits): 75 24581 1002 12289

Gen. Ratio (bits/bit): 30.59 0.07 2.28 0.18

Pct. Data Memorized: 7.23% 3214.95% 96.77% 1258.02%

Resilience to Noice (db): -1.60 1.05 -0.48 0.64

**Messages:**

Defaulted to classification problem.

RF chosen as best model out of 4

Writing RF predictor file a.py

End Time: 05/12/2022, 20:02 PDT

Runtime Duration: 52m 45s