For PETSc , all features after "removeuseless filter"

With 54 features: with 66% split

=== Run information ===

Scheme:weka.classifiers.bayes.BayesNet -D -Q weka.classifiers.bayes.net.search.local.K2 -- -P 1 -S BAYES -E weka.classifiers.bayes.net.estimate.SimpleEstimator -- -A 0.5

Relation: petsc\_data-weka.filters.unsupervised.attribute.RemoveUseless-M99.0-weka.filters.unsupervised.attribute.Remove-R19

Instances: 4648

Test mode:split 66.0% train, remainder test

=== Classifier model (full training set) ===

Bayes Network Classifier

not using ADTree

#attributes=55 #classindex=54

Network structure (nodes followed by parents)

right-bandwidth(10): class

avgdistfromdiag(9): class

n-dummy-rows(4): class

blocksize(13): class

max-nnzeros-per-row(8): class

avgnnzprow(9): class

lambda-max-by-magnitude-re(11): class

nnzup(9): class

ruhe75-bound(20): class

avg-diag-dist(21): class

nnz(12): class

lambda-min-by-magnitude-re(28): class

left-bandwidth(17): class

norm1(24): class

sigma-min(25): class

upband(10): class

n-struct-unsymm(3): class

diagonal-average(25): class

symmetry-snorm(4): class

symmetry-fanorm(12): class

symmetry-fsnorm(10): class

lambda-max-by-im-part-re(26): class

col-variability(8): class

trace-abs(14): class

nnzeros(12): class

diag-zerostart(15): class

loband(17): class

positive-fraction(5): class

trace(15): class

min-nnzeros-per-row(5): class

diagonal-sign(3): class

row-variability(2): class

nrows(16): class

n-colours(7): class

relsymm(7): class

diagonal-variance(36): class

departure(20): class

nnzlow(15): class

n-nonzero-diags(22): class

sigma-max(17): class

kappa(33): class

n-ritz-values(7): class

sigma-diag-dist(20): class

symmetry-anorm(14): class

ellipse-ax(32): class

ellipse-ay(6): class

ellipse-cx(32): class

normF(10): class

normInf(24): class

lee95-bound(9): class

lambda-max-by-real-part-re(24): class

nnzdia(16): class

trace-asquared(10): class

solver(154): class

class(2):

LogScore Bayes: -473424.3908119572

LogScore BDeu: -481015.7462331171

LogScore MDL: -480057.3645792971

LogScore ENTROPY: -472596.9206835442

LogScore AIC: -474363.9206835442

Time taken to build model: 0.21 seconds

=== Evaluation on test split ===

=== Summary ===

Correctly Classified Instances 1131 71.5823 %

Incorrectly Classified Instances 449 28.4177 %

Kappa statistic 0.4501

Mean absolute error 0.2836

Root mean squared error 0.5198

Relative absolute error 62.6203 %

Root relative squared error 109.3882 %

Total Number of Instances 1580

=== Detailed Accuracy By Class ===

TP Rate FP Rate Precision Recall F-Measure ROC Area Class

0.892 0.376 0.554 0.892 0.684 0.841 good

0.624 0.108 0.916 0.624 0.742 0.841 bad

Weighted Avg. 0.716 0.201 0.792 0.716 0.722 0.841

=== Confusion Matrix ===

a b <-- classified as

485 59 | a = good

390 646 | b = bad

With n-cross validation:

=== Confusion Matrix ===

a b <-- classified as

1413 200 | a = good

1070 1965 | b = bad

For PETSc , Reduced Set 1 features

With 8 features: With 66% split

=== Run information ===

Scheme:weka.classifiers.bayes.BayesNet -D -Q weka.classifiers.bayes.net.search.local.K2 -- -P 1 -S BAYES -E weka.classifiers.bayes.net.estimate.SimpleEstimator -- -A 0.5

Relation: petsc\_data-weka.filters.unsupervised.attribute.Remove-R25-weka.filters.unsupervised.attribute.RemoveUseless-M99.0-weka.filters.unsupervised.attribute.Remove-R1-9,12-13,15-22,24-29,31,33-38,40,42-53

Instances: 4648

Attributes: 10

avg-diag-dist

nnz

norm1

col-variability

min-nnzeros-per-row

row-variability

n-nonzero-diags

kappa

solver

class

Test mode:split 66.0% train, remainder test

=== Classifier model (full training set) ===

Bayes Network Classifier

not using ADTree

#attributes=10 #classindex=9

Network structure (nodes followed by parents)

avg-diag-dist(21): class

nnz(12): class

norm1(24): class

col-variability(8): class

min-nnzeros-per-row(5): class

row-variability(2): class

n-nonzero-diags(22): class

kappa(33): class

solver(154): class

class(2):

LogScore Bayes: -94480.85397095629

LogScore BDeu: -97521.82146695297

LogScore MDL: -96959.74253159265

LogScore ENTROPY: -94658.70013024275

LogScore AIC: -95203.70013024275

Time taken to build model: 0.03 seconds

=== Evaluation on test split ===

=== Summary ===

Correctly Classified Instances 1195 75.6329 %

Incorrectly Classified Instances 385 24.3671 %

Kappa statistic 0.5121

Mean absolute error 0.268

Root mean squared error 0.4189

Relative absolute error 59.1812 %

Root relative squared error 88.1615 %

Total Number of Instances 1580

=== Detailed Accuracy By Class ===

TP Rate FP Rate Precision Recall F-Measure ROC Area Class

0.869 0.303 0.601 0.869 0.711 0.862 good

0.697 0.131 0.91 0.697 0.79 0.862 bad

Weighted Avg. 0.756 0.19 0.804 0.756 0.762 0.862

=== Confusion Matrix ===

a b <-- classified as

473 71 | a = good

314 722 | b = bad

With n-cross validation:

=== Confusion Matrix ===

a b <-- classified as

1402 211 | a = good

991 2044 | b = bad

For PETSc , Reduced Set 2 features

With 6 features: 66% split

=== Run information ===

Scheme:weka.classifiers.bayes.BayesNet -D -Q weka.classifiers.bayes.net.search.local.K2 -- -P 1 -S BAYES -E weka.classifiers.bayes.net.estimate.SimpleEstimator -- -A 0.5

Relation: petsc\_data-weka.filters.unsupervised.attribute.Remove-R25-weka.filters.unsupervised.attribute.RemoveUseless-M99.0-weka.filters.unsupervised.attribute.Remove-R1-9,12-13,15-22,24-29,31,33-38,40,42-53-weka.filters.unsupervised.attribute.Remove-R2,7

Instances: 4648

Attributes: 8

avg-diag-dist

norm1

col-variability

min-nnzeros-per-row

row-variability

kappa

solver

class

Test mode:split 66.0% train, remainder test

=== Classifier model (full training set) ===

Bayes Network Classifier

not using ADTree

#attributes=8 #classindex=7

Network structure (nodes followed by parents)

avg-diag-dist(21): class

norm1(24): class

col-variability(8): class

min-nnzeros-per-row(5): class

row-variability(2): class

kappa(33): class

solver(154): class

class(2):

LogScore Bayes: -73404.19689117528

LogScore BDeu: -76204.91556855717

LogScore MDL: -75674.42843232487

LogScore ENTROPY: -73643.60018452798

LogScore AIC: -74124.60018452798

Time taken to build model: 0.02 seconds

=== Evaluation on test split ===

=== Summary ===

Correctly Classified Instances 1176 74.4304 %

Incorrectly Classified Instances 404 25.5696 %

Kappa statistic 0.491

Mean absolute error 0.2876

Root mean squared error 0.4086

Relative absolute error 63.5188 %

Root relative squared error 86.0009 %

Total Number of Instances 1580

=== Detailed Accuracy By Class ===

TP Rate FP Rate Precision Recall F-Measure ROC Area Class

0.866 0.319 0.587 0.866 0.7 0.855 good

0.681 0.134 0.906 0.681 0.777 0.855 bad

Weighted Avg. 0.744 0.198 0.796 0.744 0.751 0.855

=== Confusion Matrix ===

a b <-- classified as

471 73 | a = good

331 705 | b = bad

With n-cross validation:

=== Confusion Matrix ===

a b <-- classified as

1393 220 | a = good

896 2139 | b = bad