



Analysis of Algorithms for Model Training

▼ 80:20 With Features

▼ Vah01

▼ cycle0

| Algo, | RMSE, | MAE, | R-Squared, | ExecutionTime |
|---------------------|--------------|------------|------------|---------------|
| ols | ,0.068358, | 0.046850, | 0.947410, | 0.055322 |
| DecisionTree, | 0.000384, | 0.000179 | 0.999998 , | 0.300987 |
| RandomForest | , 0.001019, | 0.000130, | 0.999988, | 19.243493 |
| GradientBoosting | ,0.074501 , | 0.052490 , | 0.937534 , | 0.905652 |
| XtremeGradientBoost | ,0.002315 , | 0.001097 , | 0.999940 , | 7.170034 |
| NN | , 0.002315 , | 0.005471 , | 0.999357, | 145.350773 |
| DNN, | 0.002315, | 0.003619 , | 0.999621 , | 202.726744 |
| SVM Linear, | 0.002315 , | 0.065615 , | 0.916408 , | 2.699062 |
| SVM RBF | , 0.002315 , | 0.056528, | 0.951977 , | 2.699062 |

▼ cycle1

| Algo, | RMSE, | MAE, | R-Squared, | ExecutionTime |
|-------|------------|------------|------------|---------------|
| ols, | 0.024478 , | 0.015608 , | 0.976196 , | 0.013487 |

| | | | | |
|----------------------|------------|------------|------------|-----------|
| DecisionTree, | 0.001119, | 0.000774 , | 0.999950 , | 0.026147 |
| RandomForest, | 0.002937, | 0.000800, | 0.999657 , | 1.151268 |
| GradientBoosting, | 0.064621 , | 0.046743 , | 0.834104 , | 0.093268 |
| XtremeGradientBoost, | 0.002409 , | 0.001518 , | 0.999769 , | 0.269878 |
| NN , | 0.002409, | 0.007885 , | 0.994156 , | 10.980490 |
| DNN, | 0.002409, | 0.013398 , | 0.991323 , | 13.661564 |
| SVM Linear, | 0.002409, | 0.066960 , | 0.790024 , | 0.028681 |
| SVM RBF , | 0.002409, | 0.054426 , | 0.850127 , | 0.028681 |

▼ cycle2

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.018455 | 0.010544 | 0.976059 | 0.018295 |
| 1 | DecisionTree | 0.015733 | 0.001490 | 0.982600 | | 0.030090 |
| 2 | RandomForest | 0.008989 | 0.001114 | 0.994320 | | 1.220740 |
| 3 | GradientBoosting | 0.047273 | 0.030016 | 0.842905 | | 0.100314 |
| 4 | XtremeGradientBoost | 0.010564 | 0.002105 | 0.992155 | | 0.259935 |
| 5 | NN | 0.010564 | 0.012055 | 0.985712 | | 10.510863 |
| 6 | DNN | 0.010564 | 0.027889 | 0.941636 | | 14.263078 |
| 7 | SVM Linear | 0.010564 | 0.072996 | 0.586997 | | 0.025713 |
| 8 | SVM RBF | 0.010564 | 0.046654 | 0.782933 | | 0.025713 |

▼ cycle3

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.025357 | 0.017242 | 0.971878 | 0.009188 |
| 1 | DecisionTree | 0.001226 | 0.000837 | 0.999934 | | 0.027210 |
| 2 | RandomForest | 0.002281 | 0.000645 | 0.999772 | | 1.192315 |
| 3 | GradientBoosting | 0.056386 | 0.041251 | 0.860941 | | 0.093759 |
| 4 | XtremeGradientBoost | 0.002902 | 0.001715 | 0.999632 | | 0.240805 |
| 5 | NN | 0.002902 | 0.010749 | 0.992517 | | 10.672984 |
| 6 | DNN | 0.002902 | 0.006739 | 0.996972 | | 13.874356 |
| 7 | SVM Linear | 0.002902 | 0.063751 | 0.784574 | | 0.023650 |
| 8 | SVM RBF | 0.002902 | 0.049923 | 0.851099 | | 0.023650 |

▼ cycle4

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.022372 | 0.013989 | 0.974385 | 0.008277 |
| 1 | DecisionTree | 0.003456 | 0.000915 | 0.999389 | | 0.041898 |
| 2 | RandomForest | 0.003235 | 0.000740 | 0.999464 | | 1.181988 |
| 3 | GradientBoosting | 0.052483 | 0.032755 | 0.859034 | | 0.100728 |
| 4 | XtremeGradientBoost | 0.004118 | 0.001670 | 0.999132 | | 0.235738 |
| 5 | NN | 0.004118 | 0.006791 | 0.995720 | | 21.208869 |
| 6 | DNN | 0.004118 | 0.006036 | 0.996481 | | 21.275185 |
| 7 | SVM Linear | 0.004118 | 0.072446 | 0.702355 | | 0.021591 |
| 8 | SVM RBF | 0.004118 | 0.051356 | 0.824581 | | 0.021591 |

▼ All Cycles

| Algo | RMSE | MAE | R-Squared | ExecutionTime | |
|------|---------------------|----------|-----------|---------------|------------|
| 0 | | ols | 0.072155 | 0.050366 | 0.934440 |
| 1 | DecisionTree | 0.004227 | 0.000385 | 0.999775 | 0.333179 |
| 2 | RandomForest | 0.002926 | 0.000270 | 0.999892 | 33.970681 |
| 3 | GradientBoosting | 0.086375 | 0.064475 | 0.906053 | 1.246523 |
| 4 | XtremeGradientBoost | 0.002160 | 0.001170 | 0.999941 | 1.019972 |
| 5 | NN | 0.002160 | 0.009916 | 0.997700 | 53.332687 |
| 6 | DNN | 0.002160 | 0.003051 | 0.999755 | 153.192479 |
| 7 | SVM Linear | 0.002160 | 0.068237 | 0.906824 | 20.169696 |
| 8 | SVM RBF | 0.002160 | 0.053548 | 0.950522 | 20.169696 |

▼ Vah02

▼ cycle0

| Algo | RMSE | MAE | R-Squared | ExecutionTime | |
|------|---------------------|----------|-----------|---------------|------------|
| 0 | | ols | 0.067304 | 0.046955 | 0.948024 |
| 1 | DecisionTree | 0.000465 | 0.000174 | 0.999998 | 0.319504 |
| 2 | RandomForest | 0.001488 | 0.000121 | 0.999975 | 19.504243 |
| 3 | GradientBoosting | 0.071381 | 0.051310 | 0.941536 | 0.869590 |
| 4 | XtremeGradientBoost | 0.001690 | 0.001063 | 0.999967 | 6.320980 |
| 5 | NN | 0.001690 | 0.008013 | 0.998887 | 142.358442 |
| 6 | DNN | 0.001690 | 0.003217 | 0.999777 | 203.328673 |
| 7 | SVM Linear | 0.001690 | 0.064464 | 0.918344 | 3.009068 |
| 8 | SVM RBF | 0.001690 | 0.056333 | 0.950762 | 3.009068 |

▼ cycle1

| Algo | RMSE | MAE | R-Squared | ExecutionTime | |
|------|---------------------|----------|-----------|---------------|-----------|
| 0 | | ols | 0.024080 | 0.016902 | 0.981800 |
| 1 | DecisionTree | 0.000874 | 0.000627 | 0.999976 | 0.041282 |
| 2 | RandomForest | 0.004241 | 0.000848 | 0.999435 | 1.249310 |
| 3 | GradientBoosting | 0.058962 | 0.042080 | 0.890883 | 0.168355 |
| 4 | XtremeGradientBoost | 0.002579 | 0.001351 | 0.999791 | 0.933886 |
| 5 | NN | 0.002579 | 0.012159 | 0.994352 | 11.937572 |
| 6 | DNN | 0.002579 | 0.011506 | 0.994171 | 21.362023 |
| 7 | SVM Linear | 0.002579 | 0.075795 | 0.792918 | 0.064817 |
| 8 | SVM RBF | 0.002579 | 0.054345 | 0.875128 | 0.064817 |

▼ cycle2

| Algo | RMSE | MAE | R-Squared | ExecutionTime | |
|------|--------------|----------|-----------|---------------|----------|
| 0 | | ols | 0.017957 | 0.011110 | 0.982597 |
| 1 | DecisionTree | 0.019998 | 0.001967 | 0.978417 | 0.039190 |
| 2 | RandomForest | 0.015550 | 0.001808 | 0.986950 | 1.796544 |

| | | | | | |
|---|---------------------|----------|----------|----------|-----------|
| 3 | GradientBoosting | 0.052004 | 0.033437 | 0.854045 | 0.142867 |
| 4 | XtremeGradientBoost | 0.014577 | 0.002080 | 0.988533 | 1.468641 |
| 5 | NN | 0.014577 | 0.008455 | 0.993209 | 11.189376 |
| 6 | DNN | 0.014577 | 0.005068 | 0.996711 | 15.678674 |
| 7 | SVM Linear | 0.014577 | 0.067390 | 0.721130 | 0.022405 |
| 8 | SVM RBF | 0.014577 | 0.041735 | 0.856862 | 0.022405 |

▼ cycle3

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.024630 | 0.016355 | 0.980866 | 0.008167 |
| 1 | DecisionTree | 0.001414 | 0.000951 | 0.999937 | | 0.055654 |
| 2 | RandomForest | 0.005321 | 0.000960 | 0.999107 | | 1.837917 |
| 3 | GradientBoosting | 0.067039 | 0.048459 | 0.858250 | | 0.100967 |
| 4 | XtremeGradientBoost | 0.002409 | 0.001351 | 0.999817 | | 0.262404 |
| 5 | NN | 0.002409 | 0.008124 | 0.996485 | | 12.703655 |
| 6 | DNN | 0.002409 | 0.008644 | 0.996363 | | 14.951487 |
| 7 | SVM Linear | 0.002409 | 0.072079 | 0.810034 | | 0.035019 |
| 8 | SVM RBF | 0.002409 | 0.052674 | 0.879153 | | 0.035019 |

▼ cycle4

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.022421 | 0.011555 | 0.972990 | 0.010993 |
| 1 | DecisionTree | 0.002443 | 0.001092 | 0.999679 | | 0.032049 |
| 2 | RandomForest | 0.005386 | 0.001363 | 0.998442 | | 2.259537 |
| 3 | GradientBoosting | 0.050394 | 0.032372 | 0.863557 | | 0.138675 |
| 4 | XtremeGradientBoost | 0.003275 | 0.001612 | 0.999424 | | 0.538185 |
| 5 | NN | 0.003275 | 0.004237 | 0.997260 | | 11.530954 |
| 6 | DNN | 0.003275 | 0.018175 | 0.980197 | | 21.245704 |
| 7 | SVM Linear | 0.003275 | 0.066352 | 0.733173 | | 0.033517 |
| 8 | SVM RBF | 0.003275 | 0.041301 | 0.862065 | | 0.033517 |

▼ All Cycles

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|------------|
| 0 | | ols | 0.069657 | 0.048169 | 0.937473 | 0.016374 |
| 1 | DecisionTree | 0.000853 | 0.000377 | 0.999991 | | 0.340483 |
| 2 | RandomForest | 0.000679 | 0.000262 | 0.999994 | | 33.372422 |
| 3 | GradientBoosting | 0.083445 | 0.061082 | 0.910269 | | 1.257188 |
| 4 | XtremeGradientBoost | 0.001749 | 0.001156 | 0.999961 | | 1.018729 |
| 5 | NN | 0.001749 | 0.011554 | 0.997482 | | 56.010715 |
| 6 | DNN | 0.001749 | 0.005644 | 0.999011 | | 161.251154 |
| 7 | SVM Linear | 0.001749 | 0.065094 | 0.913140 | | 17.479485 |
| 8 | SVM RBF | 0.001749 | 0.054125 | 0.948442 | | 17.479485 |

▼ VAh05

▼ Cycle0

| Algo | RMSE | MAE | R-Squared | ExecutionTime | |
|------|---------------------|----------|-----------|---------------|------------|
| 0 | | ols | 0.035585 | 0.020514 | 0.986023 |
| 1 | DecisionTree | 0.009452 | 0.000282 | 0.999014 | 0.268589 |
| 2 | RandomForest | 0.008918 | 0.000241 | 0.999122 | 16.469648 |
| 3 | GradientBoosting | 0.060883 | 0.040431 | 0.959086 | 0.789939 |
| 4 | XtremeGradientBoost | 0.009250 | 0.001053 | 0.999056 | 3.710772 |
| 5 | NN | 0.009250 | 0.009664 | 0.998584 | 142.582045 |
| 6 | DNN | 0.009250 | 0.002894 | 0.999829 | 134.549791 |
| 7 | SVM Linear | 0.009250 | 0.061203 | 0.929555 | 3.326907 |
| 8 | SVM RBF | 0.009250 | 0.055201 | 0.954812 | 3.326907 |

▼ Cycle1

| Algo | RMSE | MAE | R-Squared | ExecutionTime | |
|------|---------------------|----------|-----------|---------------|----------|
| 0 | | ols | 0.015934 | 0.010292 | 0.963670 |
| 1 | DecisionTree | 0.036156 | 0.006129 | 0.812943 | 0.005425 |
| 2 | RandomForest | 0.018362 | 0.004032 | 0.951754 | 0.294936 |
| 3 | GradientBoosting | 0.027317 | 0.018723 | 0.893221 | 0.036552 |
| 4 | XtremeGradientBoost | 0.018236 | 0.004302 | 0.952412 | 1.911287 |
| 5 | NN | 0.018236 | 0.016104 | 0.927789 | 2.245436 |
| 6 | DNN | 0.018236 | 0.012922 | 0.969960 | 3.358248 |
| 7 | SVM Linear | 0.018236 | 0.061465 | 0.373377 | 0.004014 |
| 8 | SVM RBF | 0.018236 | 0.069951 | 0.232186 | 0.004014 |

▼ Cycle2

| Algo | RMSE | MAE | R-Squared | ExecutionTime | |
|------|---------------------|----------|-----------|---------------|----------|
| 0 | | ols | 0.014406 | 0.009606 | 0.984556 |
| 1 | DecisionTree | 0.009008 | 0.003948 | 0.993962 | 0.006899 |
| 2 | RandomForest | 0.013216 | 0.003966 | 0.987003 | 0.309490 |
| 3 | GradientBoosting | 0.039742 | 0.026268 | 0.882466 | 0.041963 |
| 4 | XtremeGradientBoost | 0.008134 | 0.004473 | 0.995077 | 0.131422 |
| 5 | NN | 0.008134 | 0.023110 | 0.927349 | 3.102940 |
| 6 | DNN | 0.008134 | 0.006137 | 0.994751 | 5.026844 |
| 7 | SVM Linear | 0.008134 | 0.056085 | 0.687263 | 0.004860 |
| 8 | SVM RBF | 0.008134 | 0.060579 | 0.677241 | 0.004860 |

▼ Cycle3

| Algo | RMSE | MAE | R-Squared | ExecutionTime | |
|------|------------------|----------|-----------|---------------|----------|
| 0 | | ols | 0.014825 | 0.010416 | 0.987548 |
| 1 | DecisionTree | 0.008902 | 0.003753 | 0.995510 | 0.005750 |
| 2 | RandomForest | 0.010021 | 0.003328 | 0.994311 | 0.245086 |
| 3 | GradientBoosting | 0.038198 | 0.028711 | 0.917333 | 0.079972 |

| | | | | | |
|---|---------------------|----------|----------|----------|----------|
| 4 | XtremeGradientBoost | 0.011498 | 0.005018 | 0.992510 | 0.425474 |
| 5 | NN | 0.011498 | 0.027306 | 0.941527 | 6.080963 |
| 6 | DNN | 0.011498 | 0.009115 | 0.993974 | 3.649572 |
| 7 | SVM Linear | 0.011498 | 0.060013 | 0.743752 | 0.005214 |
| 8 | SVM RBF | 0.011498 | 0.064218 | 0.732629 | 0.005214 |

▼ Cycle4

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.018127 | 0.014877 | 0.986688 | 0.011024 |
| 1 | DecisionTree | 0.014445 | 0.004421 | 0.991547 | | 0.004868 |
| 2 | RandomForest | 0.006394 | 0.002093 | 0.998344 | | 0.193955 |
| 3 | GradientBoosting | 0.035025 | 0.026148 | 0.950304 | | 0.033786 |
| 4 | XtremeGradientBoost | 0.007597 | 0.002465 | 0.997662 | | 0.058587 |
| 5 | NN | 0.007597 | 0.023898 | 0.965321 | | 3.005291 |
| 6 | DNN | 0.007597 | 0.008265 | 0.992739 | | 4.895179 |
| 7 | SVM Linear | 0.007597 | 0.061156 | 0.817566 | | 0.004731 |
| 8 | SVM RBF | 0.007597 | 0.077992 | 0.742841 | | 0.004731 |

▼ All Cycles

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|------------|
| 0 | | ols | 0.047667 | 0.024337 | 0.975706 | 0.026335 |
| 1 | DecisionTree | 0.000443 | 0.000152 | 0.999998 | | 0.208835 |
| 2 | RandomForest | 0.001917 | 0.000141 | 0.999961 | | 20.902719 |
| 3 | GradientBoosting | 0.066247 | 0.046877 | 0.953077 | | 0.832427 |
| 4 | XtremeGradientBoost | 0.002402 | 0.001022 | 0.999938 | | 0.705960 |
| 5 | NN | 0.002402 | 0.009369 | 0.998371 | | 38.918604 |
| 6 | DNN | 0.002402 | 0.001905 | 0.999907 | | 110.274208 |
| 7 | SVM Linear | 0.002402 | 0.062727 | 0.928080 | | 11.581831 |
| 8 | SVM RBF | 0.002402 | 0.054921 | 0.956613 | | 11.581831 |

▼ Vah07

▼ cycle0

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|------------|
| 0 | | ols | 0.051284 | 0.025296 | 0.970990 | 0.017641 |
| 1 | DecisionTree | 0.002415 | 0.000204 | 0.999936 | | 0.255833 |
| 2 | RandomForest | 0.001663 | 0.000113 | 0.999969 | | 19.083116 |
| 3 | GradientBoosting | 0.064594 | 0.044411 | 0.953978 | | 1.732841 |
| 4 | XtremeGradientBoost | 0.001518 | 0.000946 | 0.999975 | | 5.851956 |
| 5 | NN | 0.001518 | 0.012281 | 0.997756 | | 107.070810 |
| 6 | DNN | 0.001518 | 0.003302 | 0.999728 | | 142.741278 |
| 7 | SVM Linear | 0.001518 | 0.061163 | 0.929953 | | 2.268560 |
| 8 | SVM RBF | 0.001518 | 0.054647 | 0.954480 | | 2.268560 |

▼ cycle1

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.019662 | 0.013091 | 0.986480 | 0.009432 |
| 1 | DecisionTree | 0.005373 | 0.002844 | 0.998990 | | 0.005260 |
| 2 | RandomForest | 0.009907 | 0.003254 | 0.996567 | | 0.204942 |
| 3 | GradientBoosting | 0.032404 | 0.019511 | 0.963279 | | 0.031865 |
| 4 | XtremeGradientBoost | 0.006196 | 0.003175 | 0.998657 | | 0.061129 |
| 5 | NN | 0.006196 | 0.015223 | 0.984970 | | 2.412998 |
| 6 | DNN | 0.006196 | 0.006190 | 0.997765 | | 4.228677 |
| 7 | SVM Linear | 0.006196 | 0.051021 | 0.873284 | | 0.008864 |
| 8 | SVM RBF | 0.006196 | 0.057191 | 0.867793 | | 0.008864 |

▼ cycle2

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.013529 | 0.010560 | 0.992597 | 0.007425 |
| 1 | DecisionTree | 0.004569 | 0.001966 | 0.999155 | | 0.004831 |
| 2 | RandomForest | 0.004499 | 0.001956 | 0.999181 | | 0.236187 |
| 3 | GradientBoosting | 0.034119 | 0.026659 | 0.952913 | | 0.030262 |
| 4 | XtremeGradientBoost | 0.006009 | 0.003330 | 0.998539 | | 0.070812 |
| 5 | NN | 0.006009 | 0.017740 | 0.982897 | | 2.998511 |
| 6 | DNN | 0.006009 | 0.009678 | 0.995153 | | 6.204120 |
| 7 | SVM Linear | 0.006009 | 0.053965 | 0.837682 | | 0.006689 |
| 8 | SVM RBF | 0.006009 | 0.064532 | 0.804763 | | 0.006689 |

▼ cycle3

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.020325 | 0.015429 | 0.987988 | 0.009267 |
| 1 | DecisionTree | 0.033404 | 0.006696 | 0.967555 | | 0.005328 |
| 2 | RandomForest | 0.035040 | 0.007564 | 0.964301 | | 0.218559 |
| 3 | GradientBoosting | 0.033609 | 0.022252 | 0.967156 | | 0.032382 |
| 4 | XtremeGradientBoost | 0.020998 | 0.005802 | 0.987180 | | 0.072019 |
| 5 | NN | 0.020998 | 0.008103 | 0.997205 | | 2.984471 |
| 6 | DNN | 0.020998 | 0.005964 | 0.998348 | | 3.823782 |
| 7 | SVM Linear | 0.020998 | 0.050297 | 0.894149 | | 0.008777 |
| 8 | SVM RBF | 0.020998 | 0.062244 | 0.869376 | | 0.008777 |

▼ cycle4

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|--------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.030178 | 0.016030 | 0.969346 | 0.009572 |
| 1 | DecisionTree | 0.018805 | 0.005646 | 0.988096 | | 0.004137 |

| | | | | | |
|---|---------------------|----------|----------|----------|----------|
| 2 | RandomForest | 0.030406 | 0.009417 | 0.968881 | 0.197320 |
| 3 | GradientBoosting | 0.040782 | 0.024941 | 0.944016 | 0.032367 |
| 4 | XtremeGradientBoost | 0.039813 | 0.010712 | 0.946645 | 0.064831 |
| 5 | NN | 0.039813 | 0.018732 | 0.981081 | 2.420900 |
| 6 | DNN | 0.039813 | 0.003532 | 0.998020 | 3.489033 |
| 7 | SVM Linear | 0.039813 | 0.050849 | 0.879820 | 0.006078 |
| 8 | SVM RBF | 0.039813 | 0.060237 | 0.849870 | 0.006078 |

▼ All Cycles

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|------------|
| 0 | | ols | 0.061580 | 0.034031 | 0.958306 | 0.018310 |
| 1 | DecisionTree | 0.000352 | 0.000137 | 0.999999 | | 0.218043 |
| 2 | RandomForest | 0.000629 | 0.000090 | 0.999996 | | 21.170656 |
| 3 | GradientBoosting | 0.074486 | 0.055174 | 0.938998 | | 0.857656 |
| 4 | XtremeGradientBoost | 0.001264 | 0.000858 | 0.999982 | | 0.687838 |
| 5 | NN | 0.001264 | 0.006521 | 0.999307 | | 38.988119 |
| 6 | DNN | 0.001264 | 0.002024 | 0.999906 | | 117.690799 |
| 7 | SVM Linear | 0.001264 | 0.061700 | 0.929439 | | 13.536617 |
| 8 | SVM RBF | 0.001264 | 0.055037 | 0.954556 | | 13.536617 |

▼ Vah09

▼ cycle0

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|------------|
| 0 | | ols | 0.085130 | 0.058755 | 0.920045 | 0.015936 |
| 1 | DecisionTree | 0.017424 | 0.000679 | 0.996651 | | 0.069009 |
| 2 | RandomForest | 0.014103 | 0.000586 | 0.997806 | | 3.176154 |
| 3 | GradientBoosting | 0.077527 | 0.048861 | 0.933688 | | 0.139468 |
| 4 | XtremeGradientBoost | 0.009939 | 0.001092 | 0.998910 | | 0.651792 |
| 5 | NN | 0.009939 | 0.011340 | 0.997102 | | 118.198245 |
| 6 | DNN | 0.009939 | 0.002336 | 0.999592 | | 202.797541 |
| 7 | SVM Linear | 0.009939 | 0.063447 | 0.917123 | | 1.629764 |
| 8 | SVM RBF | 0.009939 | 0.052254 | 0.956470 | | 1.629764 |

▼ cycle1

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.084512 | 0.056747 | 0.710187 | 0.011122 |
| 1 | DecisionTree | 0.033029 | 0.007639 | 0.955735 | | 0.003621 |
| 2 | RandomForest | 0.024863 | 0.006322 | 0.974916 | | 0.144057 |
| 3 | GradientBoosting | 0.047219 | 0.027590 | 0.909527 | | 0.026784 |
| 4 | XtremeGradientBoost | 0.019016 | 0.005912 | 0.985327 | | 0.035172 |
| 5 | NN | 0.019016 | 0.031027 | 0.925928 | | 2.544728 |
| 6 | DNN | 0.019016 | 0.022440 | 0.968613 | | 5.937071 |

| | | | | | |
|---|------------|----------|----------|----------|----------|
| 7 | SVM Linear | 0.019016 | 0.063915 | 0.729376 | 0.006427 |
| 8 | SVM RBF | 0.019016 | 0.049633 | 0.863600 | 0.006427 |

▼ cycle2

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.077221 | 0.058284 | 0.780349 | 0.008839 |
| 1 | DecisionTree | 0.040260 | 0.008043 | 0.940296 | | 0.004704 |
| 2 | RandomForest | 0.025949 | 0.006506 | 0.975198 | | 0.151544 |
| 3 | GradientBoosting | 0.051017 | 0.028851 | 0.904130 | | 0.029290 |
| 4 | XtremeGradientBoost | 0.017408 | 0.005482 | 0.988838 | | 0.028893 |
| 5 | NN | 0.017408 | 0.026623 | 0.952535 | | 2.495733 |
| 6 | DNN | 0.017408 | 0.014080 | 0.978486 | | 5.929699 |
| 7 | SVM Linear | 0.017408 | 0.078068 | 0.727854 | | 0.009634 |
| 8 | SVM RBF | 0.017408 | 0.050462 | 0.879837 | | 0.009634 |

▼ cycle3

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|-------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.076300 | 0.058839 | 0.760033 | 0.008496 |
| 1 | DecisionTree | 0.015016 | 0.005171 | 0.990706 | | 0.004358 |
| 2 | RandomForest | 0.016106 | 0.005330 | 0.989307 | | 0.153827 |
| 3 | GradientBoosting | 0.046795 | 0.029348 | 0.909738 | | 0.025837 |
| 4 | XtremeGradientBoost | 0.015878 | 0.006525 | 0.989608 | | 0.028444 |
| 5 | NN | 0.015878 | 0.032424 | 0.914865 | | 2.470227 |
| 6 | DNN | 0.015878 | 0.015709 | 0.982193 | | 3.704432 |
| 7 | SVM Linear | 0.015878 | 0.079213 | 0.675830 | | 0.005888 |
| 8 | SVM RBF | 0.015878 | 0.051258 | 0.859254 | | 0.005888 |
| [456] | | | | | | |
| 0s | | | | | | |

▼ cycle4

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.091884 | 0.070302 | 0.733837 | 0.011454 |
| 1 | DecisionTree | 0.044938 | 0.009475 | 0.936335 | | 0.004557 |
| 2 | RandomForest | 0.041951 | 0.010550 | 0.944518 | | 0.153434 |
| 3 | GradientBoosting | 0.057100 | 0.035889 | 0.897213 | | 0.028720 |
| 4 | XtremeGradientBoost | 0.024915 | 0.008182 | 0.980429 | | 0.032594 |
| 5 | NN | 0.024915 | 0.038172 | 0.916912 | | 2.504860 |
| 6 | DNN | 0.024915 | 0.007480 | 0.995149 | | 5.957825 |
| 7 | SVM Linear | 0.024915 | 0.075637 | 0.734964 | | 0.006180 |
| 8 | SVM RBF | 0.024915 | 0.061770 | 0.861032 | | 0.006180 |

▼ All Cycles

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|------------|
| 0 | | ols | 0.047364 | 0.028115 | 0.976025 | 0.012964 |
| 1 | DecisionTree | 0.000491 | 0.000147 | 0.999997 | | 0.228031 |
| 2 | RandomForest | 0.003630 | 0.000207 | 0.999859 | | 21.770621 |
| 3 | GradientBoosting | 0.065940 | 0.046609 | 0.953532 | | 0.903885 |
| 4 | XtremeGradientBoost | 0.001719 | 0.000922 | 0.999968 | | 0.741627 |
| 5 | NN | 0.001719 | 0.011407 | 0.997880 | | 39.955637 |
| 6 | DNN | 0.001719 | 0.003243 | 0.999802 | | 116.524042 |
| 7 | SVM Linear | 0.001719 | 0.062322 | 0.929936 | | 10.725548 |
| 8 | SVM RBF | 0.001719 | 0.055934 | 0.954999 | | 10.725548 |

▼ 80:20 Without Features

▼ Vah01

▼ cycle0

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|------------|
| 0 | | ols | 0.100916 | 0.070235 | 0.884142 | 0.072446 |
| 1 | DecisionTree | 0.014469 | 0.000482 | 0.997618 | | 0.097697 |
| 2 | RandomForest | 0.012180 | 0.000442 | 0.998312 | | 3.931959 |
| 3 | GradientBoosting | 0.086851 | 0.060000 | 0.914187 | | 0.157531 |
| 4 | XtremeGradientBoost | 0.006446 | 0.000930 | 0.999527 | | 1.461184 |
| 5 | NN | 0.006446 | 0.009578 | 0.997264 | | 142.437768 |
| 6 | DNN | 0.006446 | 0.004443 | 0.999066 | | 155.746446 |
| 7 | SVM Linear | 0.006446 | 0.072681 | 0.880048 | | 2.830721 |
| 8 | SVM RBF | 0.006446 | 0.052872 | 0.956452 | | 2.830721 |

▼ cycle1

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.057653 | 0.031609 | 0.919230 | 0.008610 |
| 1 | DecisionTree | 0.016962 | 0.001421 | 0.993009 | | 0.009207 |
| 2 | RandomForest | 0.013975 | 0.001531 | 0.995254 | | 0.388990 |
| 3 | GradientBoosting | 0.084195 | 0.061130 | 0.827738 | | 0.067748 |
| 4 | XtremeGradientBoost | 0.017086 | 0.002112 | 0.992906 | | 0.305870 |
| 5 | NN | 0.017086 | 0.019000 | 0.966321 | | 21.922857 |
| 6 | DNN | 0.017086 | 0.003525 | 0.999037 | | 14.857575 |
| 7 | SVM Linear | 0.017086 | 0.061311 | 0.851931 | | 0.022957 |
| 8 | SVM RBF | 0.017086 | 0.062295 | 0.875435 | | 0.022957 |

▼ cycle2

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.059116 | 0.032347 | 0.914277 | 0.006425 |
| 1 | DecisionTree | 0.017739 | 0.001695 | 0.992281 | | 0.008051 |
| 2 | RandomForest | 0.017487 | 0.001706 | 0.992499 | | 0.308415 |
| 3 | GradientBoosting | 0.081901 | 0.058800 | 0.835462 | | 0.037600 |
| 4 | XtremeGradientBoost | 0.016919 | 0.002199 | 0.992978 | | 0.060633 |
| 5 | NN | 0.016919 | 0.019430 | 0.961572 | | 11.456816 |
| 6 | DNN | 0.016919 | 0.004081 | 0.997788 | | 21.288244 |
| 7 | SVM Linear | 0.016919 | 0.060323 | 0.854456 | | 0.036971 |
| 8 | SVM RBF | 0.016919 | 0.063181 | 0.871408 | | 0.036971 |

▼ cycle3

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.058231 | 0.031551 | 0.915081 | 0.009912 |
| 1 | DecisionTree | 0.002369 | 0.000671 | 0.999859 | | 0.007614 |
| 2 | RandomForest | 0.003476 | 0.000898 | 0.999697 | | 0.303605 |
| 3 | GradientBoosting | 0.080935 | 0.057744 | 0.835955 | | 0.038638 |
| 4 | XtremeGradientBoost | 0.004505 | 0.001478 | 0.999492 | | 0.063152 |
| 5 | NN | 0.004505 | 0.031910 | 0.941767 | | 10.710790 |
| 6 | DNN | 0.004505 | 0.008923 | 0.996038 | | 14.792432 |
| 7 | SVM Linear | 0.004505 | 0.059057 | 0.854106 | | 0.021067 |
| 8 | SVM RBF | 0.004505 | 0.061942 | 0.873552 | | 0.021067 |

▼ cycle4

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.059617 | 0.031785 | 0.911621 | 0.010311 |
| 1 | DecisionTree | 0.001211 | 0.000558 | 0.999964 | | 0.006236 |
| 2 | RandomForest | 0.006722 | 0.001342 | 0.998876 | | 0.296239 |
| 3 | GradientBoosting | 0.080573 | 0.057697 | 0.838570 | | 0.040237 |
| 4 | XtremeGradientBoost | 0.002280 | 0.001137 | 0.999871 | | 0.063232 |
| 5 | NN | 0.002280 | 0.020117 | 0.959077 | | 10.831666 |
| 6 | DNN | 0.002280 | 0.003681 | 0.998793 | | 14.663463 |
| 7 | SVM Linear | 0.002280 | 0.059745 | 0.855183 | | 0.020802 |
| 8 | SVM RBF | 0.002280 | 0.060142 | 0.880883 | | 0.020802 |

▼ All Cycles

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|------------|
| 0 | | ols | 0.099842 | 0.067337 | 0.873941 | 0.006575 |
| 1 | DecisionTree | 0.012036 | 0.000513 | 0.998168 | | 0.077218 |
| 2 | RandomForest | 0.012637 | 0.000505 | 0.997980 | | 5.819604 |
| 3 | GradientBoosting | 0.104369 | 0.079248 | 0.862250 | | 0.170486 |
| 4 | XtremeGradientBoost | 0.013206 | 0.001199 | 0.997794 | | 0.397544 |
| 5 | NN | 0.013206 | 0.007496 | 0.997400 | | 49.381519 |
| 6 | DNN | 0.013206 | 0.005890 | 0.998611 | | 146.772151 |

| | | | | | |
|---|------------|----------|----------|----------|----------|
| 7 | SVM Linear | 0.013206 | 0.070752 | 0.872388 | 8.753134 |
| 8 | SVM RBF | 0.013206 | 0.049610 | 0.955445 | 8.753134 |

▼ Vah02

▼ cycle0

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|------------|
| 0 | | ols | 0.097990 | 0.069161 | 0.889294 | 0.045187 |
| 1 | DecisionTree | 0.007948 | 0.000369 | 0.999272 | | 0.059058 |
| 2 | RandomForest | 0.003440 | 0.000242 | 0.999864 | | 3.666430 |
| 3 | GradientBoosting | 0.084300 | 0.059323 | 0.918066 | | 0.151687 |
| 4 | XtremeGradientBoost | 0.004567 | 0.000997 | 0.999759 | | 3.257479 |
| 5 | NN | 0.004567 | 0.008045 | 0.997659 | | 145.481560 |
| 6 | DNN | 0.004567 | 0.004048 | 0.999566 | | 202.754493 |
| 7 | SVM Linear | 0.004567 | 0.071109 | 0.886734 | | 2.713280 |
| 8 | SVM RBF | 0.004567 | 0.056961 | 0.951769 | | 2.713280 |

▼ cycle1

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.061611 | 0.032492 | 0.922144 | 0.015847 |
| 1 | DecisionTree | 0.000892 | 0.000487 | 0.999984 | | 0.009242 |
| 2 | RandomForest | 0.000705 | 0.000313 | 0.999990 | | 0.863631 |
| 3 | GradientBoosting | 0.065045 | 0.051894 | 0.913223 | | 0.100217 |
| 4 | XtremeGradientBoost | 0.002049 | 0.000987 | 0.999914 | | 1.009412 |
| 5 | NN | 0.002049 | 0.023965 | 0.964670 | | 21.913588 |
| 6 | DNN | 0.002049 | 0.076780 | 0.803013 | | 21.317367 |
| 7 | SVM Linear | 0.002049 | 0.056967 | 0.875871 | | 0.026915 |
| 8 | SVM RBF | 0.002049 | 0.061558 | 0.894858 | | 0.026915 |
| [51] | | | | | | |
| 0s | | | | | | |

▼ cycle2

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.062599 | 0.032939 | 0.920081 | 0.009927 |
| 1 | DecisionTree | 0.029538 | 0.003174 | 0.982206 | | 0.010547 |
| 2 | RandomForest | 0.022724 | 0.002354 | 0.989469 | | 0.408243 |
| 3 | GradientBoosting | 0.064880 | 0.051632 | 0.914150 | | 0.054375 |
| 4 | XtremeGradientBoost | 0.009533 | 0.001742 | 0.998146 | | 0.163119 |
| 5 | NN | 0.009533 | 0.018988 | 0.964934 | | 12.448131 |
| 6 | DNN | 0.009533 | 0.010856 | 0.989924 | | 17.759437 |
| 7 | SVM Linear | 0.009533 | 0.058339 | 0.874591 | | 0.025557 |
| 8 | SVM RBF | 0.009533 | 0.060048 | 0.898668 | | 0.025557 |

▼ cycle3

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.062427 | 0.032614 | 0.920637 | 0.006405 |
| 1 | DecisionTree | 0.017257 | 0.001409 | 0.993935 | | 0.007052 |
| 2 | RandomForest | 0.016904 | 0.001214 | 0.994181 | | 0.350449 |
| 3 | GradientBoosting | 0.064441 | 0.051273 | 0.915432 | | 0.039614 |
| 4 | XtremeGradientBoost | 0.009345 | 0.001506 | 0.998222 | | 0.063890 |
| 5 | NN | 0.009345 | 0.026428 | 0.957754 | | 12.818060 |
| 6 | DNN | 0.009345 | 0.005108 | 0.998839 | | 16.505635 |
| 7 | SVM Linear | 0.009345 | 0.058666 | 0.875337 | | 0.024812 |
| 8 | SVM RBF | 0.009345 | 0.059839 | 0.899288 | | 0.024812 |

▼ cycle4

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.061594 | 0.031118 | 0.920913 | 0.007197 |
| 1 | DecisionTree | 0.001079 | 0.000528 | 0.999976 | | 0.006920 |
| 2 | RandomForest | 0.002381 | 0.000554 | 0.999882 | | 0.324962 |
| 3 | GradientBoosting | 0.062730 | 0.048976 | 0.917971 | | 0.036383 |
| 4 | XtremeGradientBoost | 0.002559 | 0.001210 | 0.999864 | | 0.071098 |
| 5 | NN | 0.002559 | 0.018661 | 0.971143 | | 12.745594 |
| 6 | DNN | 0.002559 | 0.006396 | 0.998110 | | 16.420368 |
| 7 | SVM Linear | 0.002559 | 0.056710 | 0.878739 | | 0.025106 |
| 8 | SVM RBF | 0.002559 | 0.057570 | 0.901757 | | 0.025106 |

▼ all cycles

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|------------|
| 0 | | ols | 0.098306 | 0.065707 | 0.878309 | 0.000000 |
| 1 | DecisionTree | 0.001610 | 0.000444 | 0.999967 | | 0.072626 |
| 2 | RandomForest | 0.001496 | 0.000384 | 0.999972 | | 6.047982 |
| 3 | GradientBoosting | 0.099676 | 0.074923 | 0.874895 | | 0.188965 |
| 4 | XtremeGradientBoost | 0.002964 | 0.001081 | 0.999889 | | 0.415823 |
| 5 | NN | 0.002964 | 0.009081 | 0.997479 | | 50.243545 |
| 6 | DNN | 0.002964 | 0.004084 | 0.999631 | | 155.722286 |
| 7 | SVM Linear | 0.002964 | 0.069186 | 0.876164 | | 10.560916 |
| 8 | SVM RBF | 0.002964 | 0.051292 | 0.953913 | | 10.560916 |

▼ Vah05

▼ Cycle0

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.083788 | 0.056638 | 0.923404 | 0.009853 |
| 1 | DecisionTree | 0.014319 | 0.000436 | 0.997763 | | 0.080049 |
| 2 | RandomForest | 0.013590 | 0.000409 | 0.997985 | | 4.165483 |
| 3 | GradientBoosting | 0.077022 | 0.048859 | 0.935274 | | 0.142355 |
| 4 | XtremeGradientBoost | 0.013059 | 0.000949 | 0.998139 | | 0.715282 |

| | | | | | |
|---|------------|----------|----------|----------|------------|
| 5 | NN | 0.013059 | 0.008190 | 0.997671 | 142.397823 |
| 6 | DNN | 0.013059 | 0.003585 | 0.999577 | 202.768971 |
| 7 | SVM Linear | 0.013059 | 0.062753 | 0.920308 | 2.790285 |
| 8 | SVM RBF | 0.013059 | 0.054319 | 0.955337 | 2.790285 |

▼ Cycle1

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.098607 | 0.066831 | 0.733872 | 0.007017 |
| 1 | DecisionTree | 0.099066 | 0.021703 | 0.731391 | | 0.004559 |
| 2 | RandomForest | 0.066536 | 0.019231 | 0.878833 | | 0.139817 |
| 3 | GradientBoosting | 0.074021 | 0.053557 | 0.850038 | | 0.025153 |
| 4 | XtremeGradientBoost | 0.038481 | 0.011746 | 0.959470 | | 0.034421 |
| 5 | NN | 0.038481 | 0.064130 | 0.767341 | | 2.823887 |
| 6 | DNN | 0.038481 | 0.034213 | 0.944837 | | 7.279467 |
| 7 | SVM Linear | 0.038481 | 0.085555 | 0.690919 | | 0.011820 |
| 8 | SVM RBF | 0.038481 | 0.066236 | 0.847336 | | 0.011820 |

▼ Cycle 2

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.098784 | 0.066990 | 0.734128 | 0.013835 |
| 1 | DecisionTree | 0.099085 | 0.021270 | 0.732506 | | 0.003566 |
| 2 | RandomForest | 0.066246 | 0.020184 | 0.880432 | | 0.145356 |
| 3 | GradientBoosting | 0.073123 | 0.052284 | 0.854316 | | 0.036473 |
| 4 | XtremeGradientBoost | 0.037009 | 0.011144 | 0.962682 | | 0.141550 |
| 5 | NN | 0.037009 | 0.065061 | 0.759501 | | 6.016907 |
| 6 | DNN | 0.037009 | 0.024081 | 0.966347 | | 4.477651 |
| 7 | SVM Linear | 0.037009 | 0.085986 | 0.689151 | | 0.005406 |
| 8 | SVM RBF | 0.037009 | 0.066679 | 0.846861 | | 0.005406 |

▼ Cycle 3

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.098851 | 0.067465 | 0.733746 | 0.016090 |
| 1 | DecisionTree | 0.099102 | 0.021521 | 0.732392 | | 0.012915 |
| 2 | RandomForest | 0.058250 | 0.018671 | 0.907545 | | 0.483341 |
| 3 | GradientBoosting | 0.073198 | 0.052887 | 0.854008 | | 0.070375 |
| 4 | XtremeGradientBoost | 0.036012 | 0.010508 | 0.964662 | | 0.899192 |
| 5 | NN | 0.036012 | 0.064254 | 0.764167 | | 3.507061 |
| 6 | DNN | 0.036012 | 0.052249 | 0.892867 | | 6.689521 |
| 7 | SVM Linear | 0.036012 | 0.086427 | 0.689400 | | 0.010663 |
| 8 | SVM RBF | 0.036012 | 0.066827 | 0.846971 | | 0.010663 |

▼ Cycle 4

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.099593 | 0.067269 | 0.733559 | 0.008861 |
| 1 | DecisionTree | 0.099389 | 0.023338 | 0.734650 | | 0.004706 |
| 2 | RandomForest | 0.055684 | 0.015771 | 0.916707 | | 0.238139 |
| 3 | GradientBoosting | 0.075616 | 0.055120 | 0.846409 | | 0.096602 |
| 4 | XtremeGradientBoost | 0.033059 | 0.009869 | 0.970643 | | 2.620454 |
| 5 | NN | 0.033059 | 0.060207 | 0.772086 | | 6.088414 |
| 6 | DNN | 0.033059 | 0.036145 | 0.942158 | | 5.964937 |
| 7 | SVM Linear | 0.033059 | 0.084984 | 0.694882 | | 0.007859 |
| 8 | SVM RBF | 0.033059 | 0.068699 | 0.839462 | | 0.007859 |

▼ All cycles

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|------------|
| 0 | | ols | 0.093439 | 0.063519 | 0.907091 | 0.000000 |
| 1 | DecisionTree | 0.001244 | 0.000191 | 0.999984 | | 0.050838 |
| 2 | RandomForest | 0.002938 | 0.000248 | 0.999908 | | 4.232227 |
| 3 | GradientBoosting | 0.082683 | 0.053249 | 0.927250 | | 0.151439 |
| 4 | XtremeGradientBoost | 0.002518 | 0.000817 | 0.999933 | | 0.305921 |
| 5 | NN | 0.002518 | 0.014718 | 0.995834 | | 36.156614 |
| 6 | DNN | 0.002518 | 0.004662 | 0.999436 | | 110.608159 |
| 7 | SVM Linear | 0.002518 | 0.067519 | 0.904833 | | 4.320519 |
| 8 | SVM RBF | 0.002518 | 0.053830 | 0.956633 | | 4.320519 |

▼ Vah07

▼ Cycle0

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|------------|
| 0 | | ols | 0.089359 | 0.058751 | 0.912882 | 0.015743 |
| 1 | DecisionTree | 0.000635 | 0.000168 | 0.999996 | | 0.068534 |
| 2 | RandomForest | 0.002673 | 0.000195 | 0.999922 | | 3.642168 |
| 3 | GradientBoosting | 0.078366 | 0.051865 | 0.932997 | | 0.128998 |
| 4 | XtremeGradientBoost | 0.001519 | 0.000717 | 0.999975 | | 0.650810 |
| 5 | NN | 0.001519 | 0.011556 | 0.997205 | | 106.507577 |
| 6 | DNN | 0.001519 | 0.011373 | 0.984723 | | 136.772310 |
| 7 | SVM Linear | 0.001519 | 0.063931 | 0.911638 | | 1.884587 |
| 8 | SVM RBF | 0.001519 | 0.054823 | 0.956575 | | 1.884587 |

▼ Cycle 1

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.127548 | 0.091783 | 0.680419 | 0.006540 |
| 1 | DecisionTree | 0.008122 | 0.003184 | 0.998704 | | 0.003692 |
| 2 | RandomForest | 0.015142 | 0.005941 | 0.995496 | | 0.133981 |
| 3 | GradientBoosting | 0.062788 | 0.047736 | 0.922557 | | 0.021266 |
| 4 | XtremeGradientBoost | 0.011032 | 0.004813 | 0.997609 | | 0.042483 |

| | | | | | |
|---|------------|----------|----------|----------|----------|
| 5 | NN | 0.011032 | 0.074615 | 0.763466 | 3.033294 |
| 6 | DNN | 0.011032 | 0.018264 | 0.981681 | 5.876600 |
| 7 | SVM Linear | 0.011032 | 0.107463 | 0.625349 | 0.007894 |
| 8 | SVM RBF | 0.011032 | 0.062758 | 0.900552 | 0.007894 |

▼ Cycle2

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.126975 | 0.089739 | 0.666762 | 0.015219 |
| 1 | DecisionTree | 0.025324 | 0.007532 | 0.986745 | | 0.006319 |
| 2 | RandomForest | 0.022757 | 0.007226 | 0.989296 | | 0.141479 |
| 3 | GradientBoosting | 0.063339 | 0.050130 | 0.917081 | | 0.023284 |
| 4 | XtremeGradientBoost | 0.029249 | 0.008254 | 0.982318 | | 0.032202 |
| 5 | NN | 0.029249 | 0.067013 | 0.785796 | | 3.002794 |
| 6 | DNN | 0.029249 | 0.010783 | 0.986184 | | 5.734701 |
| 7 | SVM Linear | 0.029249 | 0.105706 | 0.609639 | | 0.008613 |
| 8 | SVM RBF | 0.029249 | 0.068160 | 0.880377 | | 0.008613 |

▼ Cycle3

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|-------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.111011 | 0.080139 | 0.728201 | 0.010877 |
| 1 | DecisionTree | 0.013976 | 0.004098 | 0.995692 | | 0.004802 |
| 2 | RandomForest | 0.014426 | 0.004240 | 0.995410 | | 0.226560 |
| 3 | GradientBoosting | 0.059253 | 0.048952 | 0.922565 | | 0.032958 |
| 4 | XtremeGradientBoost | 0.024813 | 0.007230 | 0.986420 | | 0.231432 |
| 5 | NN | 0.024813 | 0.054531 | 0.836233 | | 3.317014 |
| 6 | DNN | 0.024813 | 0.012508 | 0.990904 | | 4.630904 |
| 7 | SVM Linear | 0.024813 | 0.094385 | 0.675472 | | 0.005315 |
| 8 | SVM RBF | 0.024813 | 0.065704 | 0.883678 | | 0.005315 |
| [183] | | | | | | |
| 0s | | | | | | |

▼ Cycle4

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.128421 | 0.091529 | 0.655912 | 0.005796 |
| 1 | DecisionTree | 0.042167 | 0.009333 | 0.962903 | | 0.005907 |
| 2 | RandomForest | 0.042241 | 0.012115 | 0.962773 | | 0.160115 |
| 3 | GradientBoosting | 0.066849 | 0.050151 | 0.906764 | | 0.031978 |
| 4 | XtremeGradientBoost | 0.017583 | 0.006462 | 0.993549 | | 0.061498 |
| 5 | NN | 0.017583 | 0.058315 | 0.848933 | | 3.009763 |
| 6 | DNN | 0.017583 | 0.014100 | 0.993216 | | 6.433486 |
| 7 | SVM Linear | 0.017583 | 0.105445 | 0.608801 | | 0.007013 |
| 8 | SVM RBF | 0.017583 | 0.059985 | 0.900017 | | 0.007013 |

▼ All cycle

| Algo | RMSE | MAE | R-Squared | ExecutionTime | |
|------|---------------------|----------|-----------|---------------|------------|
| 0 | | ols | 0.100448 | 0.065989 | 0.892210 |
| 1 | DecisionTree | 0.018039 | 0.000561 | 0.996524 | 0.063702 |
| 2 | RandomForest | 0.015005 | 0.000539 | 0.997595 | 4.180382 |
| 3 | GradientBoosting | 0.097997 | 0.067982 | 0.897405 | 0.124361 |
| 4 | XtremeGradientBoost | 0.010653 | 0.000994 | 0.998788 | 0.302943 |
| 5 | NN | 0.010653 | 0.012561 | 0.996469 | 34.968432 |
| 6 | DNN | 0.010653 | 0.024194 | 0.970611 | 110.604253 |
| 7 | SVM Linear | 0.010653 | 0.069052 | 0.891792 | 5.139013 |
| 8 | SVM RBF | 0.010653 | 0.054739 | 0.956738 | 5.139013 |

▼ Vah09

▼ Cycle0

| Algo | RMSE | MAE | R-Squared | ExecutionTime | |
|------|---------------------|----------|-----------|---------------|------------|
| 0 | | ols | 0.083128 | 0.059003 | 0.924713 |
| 1 | DecisionTree | 0.003485 | 0.000312 | 0.999868 | 0.081684 |
| 2 | RandomForest | 0.005935 | 0.000405 | 0.999616 | 4.806721 |
| 3 | GradientBoosting | 0.075384 | 0.047465 | 0.938088 | 0.185778 |
| 4 | XtremeGradientBoost | 0.002335 | 0.000744 | 0.999941 | 2.145402 |
| 5 | NN | 0.002335 | 0.007979 | 0.997944 | 142.402668 |
| 6 | DNN | 0.002335 | 0.016679 | 0.987544 | 152.646492 |
| 7 | SVM Linear | 0.002335 | 0.063383 | 0.923022 | 1.758804 |
| 8 | SVM RBF | 0.002335 | 0.054910 | 0.955706 | 1.758804 |

▼ Cycle1

| Algo | RMSE | MAE | R-Squared | ExecutionTime | |
|------|---------------------|----------|-----------|---------------|----------|
| 0 | | ols | 0.121212 | 0.084384 | 0.586856 |
| 1 | DecisionTree | 0.076874 | 0.013056 | 0.833822 | 0.004314 |
| 2 | RandomForest | 0.059297 | 0.013603 | 0.901129 | 0.142748 |
| 3 | GradientBoosting | 0.099490 | 0.057772 | 0.721666 | 0.027147 |
| 4 | XtremeGradientBoost | 0.058242 | 0.010756 | 0.904615 | 0.038520 |
| 5 | NN | 0.058242 | 0.069501 | 0.688284 | 3.416685 |
| 6 | DNN | 0.058242 | 0.028130 | 0.931043 | 5.008741 |
| 7 | SVM Linear | 0.058242 | 0.096471 | 0.579585 | 0.005664 |
| 8 | SVM RBF | 0.058242 | 0.074267 | 0.815313 | 0.005664 |

▼ Cycle2

| Algo | RMSE | MAE | R-Squared | ExecutionTime | |
|------|---------------------|----------|-----------|---------------|----------|
| 0 | | ols | 0.121216 | 0.084398 | 0.586922 |
| 1 | DecisionTree | 0.077088 | 0.013706 | 0.832936 | 0.004018 |
| 2 | RandomForest | 0.062558 | 0.013267 | 0.889977 | 0.162951 |
| 3 | GradientBoosting | 0.100194 | 0.058768 | 0.717778 | 0.035189 |
| 4 | XtremeGradientBoost | 0.058306 | 0.011728 | 0.904428 | 0.447207 |

| | | | | | |
|---|------------|----------|----------|----------|-----------|
| 5 | NN | 0.058306 | 0.066424 | 0.703699 | 3.257761 |
| 6 | DNN | 0.058306 | 0.027968 | 0.925218 | 12.397595 |
| 7 | SVM Linear | 0.058306 | 0.097631 | 0.577402 | 0.005119 |
| 8 | SVM RBF | 0.058306 | 0.075430 | 0.810191 | 0.005119 |

▼ Cycle3

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.118493 | 0.083810 | 0.635685 | 0.008763 |
| 1 | DecisionTree | 0.087027 | 0.017917 | 0.803484 | | 0.003761 |
| 2 | RandomForest | 0.059852 | 0.015864 | 0.907051 | | 0.217472 |
| 3 | GradientBoosting | 0.084961 | 0.047764 | 0.812705 | | 0.035759 |
| 4 | XtremeGradientBoost | 0.059596 | 0.012279 | 0.907845 | | 0.051206 |
| 5 | NN | 0.059596 | 0.068495 | 0.725442 | | 5.824732 |
| 6 | DNN | 0.059596 | 0.023689 | 0.957434 | | 4.498301 |
| 7 | SVM Linear | 0.059596 | 0.097667 | 0.620992 | | 0.007938 |
| 8 | SVM RBF | 0.059596 | 0.083602 | 0.790899 | | 0.007938 |

▼ cycle4

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.121102 | 0.084407 | 0.587898 | 0.006704 |
| 1 | DecisionTree | 0.076840 | 0.012625 | 0.834088 | | 0.004046 |
| 2 | RandomForest | 0.061062 | 0.012423 | 0.895228 | | 0.141855 |
| 3 | GradientBoosting | 0.090952 | 0.054765 | 0.767551 | | 0.024943 |
| 4 | XtremeGradientBoost | 0.058125 | 0.011244 | 0.905066 | | 0.036366 |
| 5 | NN | 0.058125 | 0.073901 | 0.672089 | | 3.174496 |
| 6 | DNN | 0.058125 | 0.029614 | 0.945168 | | 3.965359 |
| 7 | SVM Linear | 0.058125 | 0.096787 | 0.579864 | | 0.004465 |
| 8 | SVM RBF | 0.058125 | 0.073058 | 0.819483 | | 0.004465 |

▼ All Cycle

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|------------|
| 0 | | ols | 0.093420 | 0.063725 | 0.907758 | 0.005967 |
| 1 | DecisionTree | 0.002010 | 0.000256 | 0.999957 | | 0.049998 |
| 2 | RandomForest | 0.005094 | 0.000311 | 0.999726 | | 4.135364 |
| 3 | GradientBoosting | 0.081699 | 0.053586 | 0.929452 | | 0.137224 |
| 4 | XtremeGradientBoost | 0.001539 | 0.000696 | 0.999975 | | 0.300444 |
| 5 | NN | 0.001539 | 0.008136 | 0.997897 | | 36.108303 |
| 6 | DNN | 0.001539 | 0.012743 | 0.997697 | | 113.916000 |
| 7 | SVM Linear | 0.001539 | 0.067339 | 0.905361 | | 5.705267 |
| 8 | SVM RBF | 0.001539 | 0.051723 | 0.959910 | | 5.705267 |

▼ 70:30 With Features

▼ Vah01

▼ Cycle0

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.070131 | 0.046431 | 0.944329 | 0.015869 |
| 1 | DecisionTree | 0.001553 | 0.000237 | 0.999973 | | 0.189666 |
| 2 | RandomForest | 0.004909 | 0.000241 | 0.999727 | | 19.400989 |
| 3 | GradientBoosting | 0.074547 | 0.052950 | 0.937098 | | 0.778126 |
| 4 | XtremeGradientBoost | 0.004326 | 0.001193 | 0.999788 | | 0.645016 |
| 5 | NN | 0.004326 | 0.005489 | 0.999309 | | 33.833867 |
| 6 | DNN | 0.004326 | 0.002215 | 0.999865 | | 98.986122 |
| 7 | SVM Linear | 0.004326 | 0.065246 | 0.917243 | | 8.841772 |
| 8 | SVM RBF | 0.004326 | 0.056533 | 0.951715 | | 8.841772 |

▼ Cycle1

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.025205 | 0.015987 | 0.973902 | 0.015625 |
| 1 | DecisionTree | 0.001196 | 0.000817 | 0.999941 | | 0.014196 |
| 2 | RandomForest | 0.004320 | 0.001044 | 0.999233 | | 1.390833 |
| 3 | GradientBoosting | 0.063431 | 0.045093 | 0.834711 | | 0.079502 |
| 4 | XtremeGradientBoost | 0.002277 | 0.001482 | 0.999787 | | 0.049505 |
| 5 | NN | 0.002277 | 0.006299 | 0.996251 | | 3.300942 |
| 6 | DNN | 0.002277 | 0.010791 | 0.990457 | | 8.279924 |
| 7 | SVM Linear | 0.002277 | 0.068863 | 0.773075 | | 0.018464 |
| 8 | SVM RBF | 0.002277 | 0.054077 | 0.844611 | | 0.018464 |

▼ Cycle2

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.019583 | 0.010940 | 0.974130 | 0.015517 |
| 1 | DecisionTree | 0.011782 | 0.001225 | 0.990636 | | 0.016404 |
| 2 | RandomForest | 0.008549 | 0.001155 | 0.995070 | | 1.462341 |
| 3 | GradientBoosting | 0.047690 | 0.029851 | 0.846583 | | 0.088895 |
| 4 | XtremeGradientBoost | 0.009215 | 0.002166 | 0.994272 | | 0.053538 |
| 5 | NN | 0.009215 | 0.007262 | 0.992605 | | 3.204875 |
| 6 | DNN | 0.009215 | 0.007688 | 0.993467 | | 8.470267 |
| 7 | SVM Linear | 0.009215 | 0.071796 | 0.615645 | | 0.017015 |
| 8 | SVM RBF | 0.009215 | 0.046515 | 0.793550 | | 0.017015 |

▼ Cycle3

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|--------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.025218 | 0.016873 | 0.971416 | 0.015005 |
| 1 | DecisionTree | 0.004564 | 0.001098 | 0.999064 | | 0.018438 |

| | | | | | |
|---|---------------------|----------|----------|----------|----------|
| 2 | RandomForest | 0.003147 | 0.000753 | 0.999555 | 1.393860 |
| 3 | GradientBoosting | 0.055260 | 0.039795 | 0.862753 | 0.091066 |
| 4 | XtremeGradientBoost | 0.003453 | 0.001775 | 0.999464 | 0.050667 |
| 5 | NN | 0.003453 | 0.012820 | 0.989818 | 3.193497 |
| 6 | DNN | 0.003453 | 0.038139 | 0.927673 | 8.477862 |
| 7 | SVM Linear | 0.003453 | 0.063354 | 0.781978 | 0.034818 |
| 8 | SVM RBF | 0.003453 | 0.048295 | 0.854206 | 0.034818 |

▼ Cycle4

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.023005 | 0.014445 | 0.973969 | 0.015328 |
| 1 | DecisionTree | 0.003216 | 0.000937 | 0.999491 | | 0.018945 |
| 2 | RandomForest | 0.002594 | 0.000684 | 0.999669 | | 1.389535 |
| 3 | GradientBoosting | 0.054132 | 0.035626 | 0.855876 | | 0.084162 |
| 4 | XtremeGradientBoost | 0.003440 | 0.001462 | 0.999418 | | 0.053124 |
| 5 | NN | 0.003440 | 0.011752 | 0.990038 | | 3.211621 |
| 6 | DNN | 0.003440 | 0.056891 | 0.834418 | | 8.327030 |
| 7 | SVM Linear | 0.003440 | 0.071734 | 0.716962 | | 0.040037 |
| 8 | SVM RBF | 0.003440 | 0.052664 | 0.824991 | | 0.040037 |

▼ All Cycles

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|------------|
| 0 | | ols | 0.071930 | 0.050004 | 0.935890 | 0.012999 |
| 1 | DecisionTree | 0.003513 | 0.000386 | 0.999847 | | 0.286990 |
| 2 | RandomForest | 0.002914 | 0.000293 | 0.999895 | | 28.916275 |
| 3 | GradientBoosting | 0.087592 | 0.065532 | 0.904933 | | 1.065517 |
| 4 | XtremeGradientBoost | 0.002022 | 0.001213 | 0.999949 | | 0.850555 |
| 5 | NN | 0.002022 | 0.005629 | 0.998989 | | 45.723259 |
| 6 | DNN | 0.002022 | 0.003682 | 0.999594 | | 138.022805 |
| 7 | SVM Linear | 0.002022 | 0.067811 | 0.909132 | | 11.020148 |
| 8 | SVM RBF | 0.002022 | 0.053690 | 0.951054 | | 11.020148 |

▼ Vah02

▼ Cycle0

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|------------|
| 0 | | ols | 0.068188 | 0.047345 | 0.946419 | 0.013996 |
| 1 | DecisionTree | 0.000537 | 0.000190 | 0.999997 | | 0.201056 |
| 2 | RandomForest | 0.001176 | 0.000124 | 0.999984 | | 19.396020 |
| 3 | GradientBoosting | 0.072499 | 0.052510 | 0.939430 | | 0.771371 |
| 4 | XtremeGradientBoost | 0.001827 | 0.001055 | 0.999962 | | 0.595944 |
| 5 | NN | 0.001827 | 0.007130 | 0.998925 | | 33.806661 |
| 6 | DNN | 0.001827 | 0.005480 | 0.999312 | | 100.262337 |

| | | | | | |
|---|------------|----------|----------|----------|----------|
| 7 | SVM Linear | 0.001827 | 0.064700 | 0.917605 | 9.983916 |
| 8 | SVM RBF | 0.001827 | 0.056616 | 0.950200 | 9.983916 |

▼ Cycle1

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.024717 | 0.017019 | 0.981008 | 0.011502 |
| 1 | DecisionTree | 0.004093 | 0.000964 | 0.999479 | | 0.022650 |
| 2 | RandomForest | 0.004043 | 0.000847 | 0.999492 | | 1.533764 |
| 3 | GradientBoosting | 0.059676 | 0.042785 | 0.889293 | | 0.097341 |
| 4 | XtremeGradientBoost | 0.002821 | 0.001386 | 0.999753 | | 0.046242 |
| 5 | NN | 0.002821 | 0.015264 | 0.991350 | | 3.517062 |
| 6 | DNN | 0.002821 | 0.004393 | 0.998475 | | 9.551244 |
| 7 | SVM Linear | 0.002821 | 0.076628 | 0.793297 | | 0.084990 |
| 8 | SVM RBF | 0.002821 | 0.055222 | 0.873151 | | 0.084990 |

▼ Cycle2

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.020820 | 0.011158 | 0.976389 | 0.000000 |
| 1 | DecisionTree | 0.015750 | 0.001628 | 0.986490 | | 0.018341 |
| 2 | RandomForest | 0.012972 | 0.001547 | 0.990834 | | 1.594805 |
| 3 | GradientBoosting | 0.051891 | 0.032350 | 0.853341 | | 0.095875 |
| 4 | XtremeGradientBoost | 0.011444 | 0.001926 | 0.992866 | | 0.045508 |
| 5 | NN | 0.011444 | 0.006253 | 0.995442 | | 3.594095 |
| 6 | DNN | 0.011444 | 0.012640 | 0.988127 | | 9.191887 |
| 7 | SVM Linear | 0.011444 | 0.067266 | 0.719891 | | 0.032413 |
| 8 | SVM RBF | 0.011444 | 0.040883 | 0.861022 | | 0.032413 |

▼ Cycle3

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.024201 | 0.016410 | 0.981586 | 0.010999 |
| 1 | DecisionTree | 0.001337 | 0.000933 | 0.999944 | | 0.017363 |
| 2 | RandomForest | 0.004035 | 0.000956 | 0.999488 | | 1.551503 |
| 3 | GradientBoosting | 0.067495 | 0.046877 | 0.856773 | | 0.101651 |
| 4 | XtremeGradientBoost | 0.002611 | 0.001445 | 0.999786 | | 0.047715 |
| 5 | NN | 0.002611 | 0.005508 | 0.997209 | | 3.659127 |
| 6 | DNN | 0.002611 | 0.004821 | 0.998625 | | 9.319826 |
| 7 | SVM Linear | 0.002611 | 0.073992 | 0.802428 | | 0.069201 |
| 8 | SVM RBF | 0.002611 | 0.054141 | 0.874033 | | 0.069201 |

▼ Cycle4

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|------|-----|-----------|---------------|----------|----------|
| 0 | | ols | 0.022600 | 0.012253 | 0.973064 | 0.015485 |

| | | | | | |
|---|---------------------|----------|----------|----------|----------|
| 1 | DecisionTree | 0.002005 | 0.001071 | 0.999788 | 0.016688 |
| 2 | RandomForest | 0.010453 | 0.002114 | 0.994238 | 1.614944 |
| 3 | GradientBoosting | 0.051147 | 0.032565 | 0.862045 | 0.082269 |
| 4 | XtremeGradientBoost | 0.002902 | 0.001697 | 0.999556 | 0.056969 |
| 5 | NN | 0.002902 | 0.023535 | 0.967076 | 3.519500 |
| 6 | DNN | 0.002902 | 0.011890 | 0.991035 | 9.716604 |
| 7 | SVM Linear | 0.002902 | 0.066890 | 0.729947 | 0.036840 |
| 8 | SVM RBF | 0.002902 | 0.041529 | 0.862343 | 0.036840 |

▼ All Cycles

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|------------|
| 0 | | ols | 0.069064 | 0.048052 | 0.938731 | 0.014995 |
| 1 | DecisionTree | 0.000928 | 0.000407 | 0.999989 | | 0.293333 |
| 2 | RandomForest | 0.000983 | 0.000292 | 0.999988 | | 29.885518 |
| 3 | GradientBoosting | 0.084301 | 0.062875 | 0.908716 | | 1.141381 |
| 4 | XtremeGradientBoost | 0.001835 | 0.001180 | 0.999957 | | 0.943632 |
| 5 | NN | 0.001835 | 0.007804 | 0.998559 | | 50.095256 |
| 6 | DNN | 0.001835 | 0.007951 | 0.998969 | | 142.392635 |
| 7 | SVM Linear | 0.001835 | 0.065114 | 0.913596 | | 17.648226 |
| 8 | SVM RBF | 0.001835 | 0.055022 | 0.947595 | | 17.648226 |

▼ Vah05

▼ Cycle0

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.037473 | 0.020333 | 0.984434 | 0.011997 |
| 1 | DecisionTree | 0.007808 | 0.000279 | 0.999324 | | 0.174451 |
| 2 | RandomForest | 0.007699 | 0.000217 | 0.999343 | | 16.931751 |
| 3 | GradientBoosting | 0.060675 | 0.040245 | 0.959192 | | 0.689397 |
| 4 | XtremeGradientBoost | 0.007627 | 0.001059 | 0.999355 | | 0.531804 |
| 5 | NN | 0.007627 | 0.015711 | 0.996305 | | 32.125033 |
| 6 | DNN | 0.007627 | 0.002189 | 0.999896 | | 97.777100 |
| 7 | SVM Linear | 0.007627 | 0.060883 | 0.929885 | | 9.323404 |
| 8 | SVM RBF | 0.007627 | 0.055075 | 0.954554 | | 9.323404 |

▼ Cycle1

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.019244 | 0.010734 | 0.973183 | 0.000000 |
| 1 | DecisionTree | 0.030197 | 0.005702 | 0.933971 | | 0.000000 |
| 2 | RandomForest | 0.023179 | 0.007178 | 0.961097 | | 0.191497 |
| 3 | GradientBoosting | 0.037709 | 0.022859 | 0.897035 | | 0.017291 |
| 4 | XtremeGradientBoost | 0.013938 | 0.003500 | 0.985934 | | 0.024958 |
| 5 | NN | 0.013938 | 0.018876 | 0.951033 | | 0.860701 |
| 6 | DNN | 0.013938 | 0.058645 | 0.729974 | | 1.867639 |

| | | | | | |
|---|------------|----------|----------|----------|----------|
| 7 | SVM Linear | 0.013938 | 0.060052 | 0.685816 | 0.005591 |
| 8 | SVM RBF | 0.013938 | 0.070298 | 0.603901 | 0.005591 |

▼ Cycle2

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.016104 | 0.010677 | 0.983716 | 0.005965 |
| 1 | DecisionTree | 0.005520 | 0.002941 | 0.998087 | | 0.004034 |
| 2 | RandomForest | 0.019987 | 0.007340 | 0.974917 | | 0.180094 |
| 3 | GradientBoosting | 0.043768 | 0.027932 | 0.879718 | | 0.016552 |
| 4 | XtremeGradientBoost | 0.006439 | 0.003793 | 0.997397 | | 0.016828 |
| 5 | NN | 0.006439 | 0.027259 | 0.913751 | | 0.853258 |
| 6 | DNN | 0.006439 | 0.021086 | 0.958094 | | 1.757770 |
| 7 | SVM Linear | 0.006439 | 0.053842 | 0.746430 | | 0.000000 |
| 8 | SVM RBF | 0.006439 | 0.065940 | 0.687589 | | 0.000000 |

▼ Cycle3

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.014765 | 0.010246 | 0.988440 | 0.004998 |
| 1 | DecisionTree | 0.041163 | 0.009238 | 0.910146 | | 0.004714 |
| 2 | RandomForest | 0.033555 | 0.008865 | 0.940291 | | 0.182668 |
| 3 | GradientBoosting | 0.046411 | 0.030971 | 0.885775 | | 0.012765 |
| 4 | XtremeGradientBoost | 0.013446 | 0.007546 | 0.990412 | | 0.022791 |
| 5 | NN | 0.013446 | 0.023438 | 0.945985 | | 0.838401 |
| 6 | DNN | 0.013446 | 0.055557 | 0.823224 | | 1.786013 |
| 7 | SVM Linear | 0.013446 | 0.062002 | 0.745134 | | 0.000000 |
| 8 | SVM RBF | 0.013446 | 0.065976 | 0.736128 | | 0.000000 |

▼ Cycle4

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.018403 | 0.015238 | 0.985216 | 0.000000 |
| 1 | DecisionTree | 0.041066 | 0.008014 | 0.926387 | | 0.003003 |
| 2 | RandomForest | 0.021524 | 0.004971 | 0.979778 | | 0.177958 |
| 3 | GradientBoosting | 0.046233 | 0.030084 | 0.906695 | | 0.014484 |
| 4 | XtremeGradientBoost | 0.016235 | 0.005558 | 0.988494 | | 0.021939 |
| 5 | NN | 0.016235 | 0.020862 | 0.967928 | | 0.831507 |
| 6 | DNN | 0.016235 | 0.028014 | 0.958747 | | 1.820293 |
| 7 | SVM Linear | 0.016235 | 0.061363 | 0.802676 | | 0.000000 |
| 8 | SVM RBF | 0.016235 | 0.075205 | 0.734196 | | 0.000000 |

▼ All cycles at once

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|------|-----|-----------|---------------|----------|----------|
| 0 | | ols | 0.045555 | 0.024200 | 0.977780 | 0.013997 |

| | | | | | |
|---|---------------------|----------|----------|----------|-----------|
| 1 | DecisionTree | 0.001010 | 0.000176 | 0.999989 | 0.177146 |
| 2 | RandomForest | 0.002802 | 0.000194 | 0.999916 | 18.226065 |
| 3 | GradientBoosting | 0.064979 | 0.046456 | 0.954791 | 0.753273 |
| 4 | XtremeGradientBoost | 0.003250 | 0.001073 | 0.999887 | 0.614324 |
| 5 | NN | 0.003250 | 0.010303 | 0.998316 | 34.068863 |
| 6 | DNN | 0.003250 | 0.008243 | 0.998743 | 96.605853 |
| 7 | SVM Linear | 0.003250 | 0.061911 | 0.929601 | 9.145329 |
| 8 | SVM RBF | 0.003250 | 0.054798 | 0.956733 | 9.145329 |

▼ Vah07

▼ cycle0

| Algo | RMSE | MAE | R-Squared | ExecutionTime | |
|------|---------------------|----------|-----------|---------------|------------|
| 0 | ols | 0.048353 | 0.025374 | 0.974008 | 0.047243 |
| 1 | DecisionTree | 0.005513 | 0.000276 | 0.999662 | 0.229733 |
| 2 | RandomForest | 0.006242 | 0.000211 | 0.999567 | 14.381613 |
| 3 | GradientBoosting | 0.065010 | 0.044799 | 0.953016 | 0.707164 |
| 4 | XtremeGradientBoost | 0.002884 | 0.000989 | 0.999908 | 6.196489 |
| 5 | NN | 0.002884 | 0.006285 | 0.999111 | 104.592124 |
| 6 | DNN | 0.002884 | 0.002327 | 0.999800 | 143.009364 |
| 7 | SVM Linear | 0.002884 | 0.060902 | 0.928659 | 3.126102 |
| 8 | SVM RBF | 0.002884 | 0.054442 | 0.954421 | 3.126102 |

▼ cycle1

| Algo | RMSE | MAE | R-Squared | ExecutionTime | |
|------|---------------------|----------|-----------|---------------|----------|
| 0 | ols | 0.018436 | 0.011932 | 0.987513 | 0.010287 |
| 1 | DecisionTree | 0.006159 | 0.002807 | 0.998606 | 0.005063 |
| 2 | RandomForest | 0.009388 | 0.003031 | 0.996762 | 0.289243 |
| 3 | GradientBoosting | 0.029500 | 0.019248 | 0.968027 | 0.041042 |
| 4 | XtremeGradientBoost | 0.006196 | 0.003095 | 0.998589 | 0.524953 |
| 5 | NN | 0.006196 | 0.016283 | 0.983534 | 2.273350 |
| 6 | DNN | 0.006196 | 0.022261 | 0.980467 | 3.325950 |
| 7 | SVM Linear | 0.006196 | 0.050219 | 0.867348 | 0.003785 |
| 8 | SVM RBF | 0.006196 | 0.056709 | 0.862028 | 0.003785 |

▼ cycle2

| Algo | RMSE | MAE | R-Squared | ExecutionTime | |
|------|---------------------|----------|-----------|---------------|----------|
| 0 | ols | 0.022453 | 0.013557 | 0.977871 | 0.008850 |
| 1 | DecisionTree | 0.012411 | 0.004910 | 0.993239 | 0.005207 |
| 2 | RandomForest | 0.011228 | 0.004249 | 0.994467 | 0.204597 |
| 3 | GradientBoosting | 0.033756 | 0.026914 | 0.949985 | 0.032235 |
| 4 | XtremeGradientBoost | 0.010640 | 0.005193 | 0.995031 | 0.052193 |
| 5 | NN | 0.010640 | 0.018382 | 0.979571 | 2.992862 |
| 6 | DNN | 0.010640 | 0.014171 | 0.989832 | 3.311456 |

| | | | | | |
|---|------------|----------|----------|----------|----------|
| 7 | SVM Linear | 0.010640 | 0.054667 | 0.824475 | 0.004099 |
| 8 | SVM RBF | 0.010640 | 0.064333 | 0.792822 | 0.004099 |

▼ cycle3

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.018522 | 0.013884 | 0.989704 | 0.009815 |
| 1 | DecisionTree | 0.042156 | 0.007197 | 0.946666 | | 0.005426 |
| 2 | RandomForest | 0.026748 | 0.005200 | 0.978528 | | 0.311069 |
| 3 | GradientBoosting | 0.029955 | 0.020255 | 0.973071 | | 0.041595 |
| 4 | XtremeGradientBoost | 0.018545 | 0.005952 | 0.989679 | | 0.198794 |
| 5 | NN | 0.018545 | 0.010505 | 0.995063 | | 2.935295 |
| 6 | DNN | 0.018545 | 0.004016 | 0.998679 | | 3.270392 |
| 7 | SVM Linear | 0.018545 | 0.051546 | 0.891275 | | 0.003767 |
| 8 | SVM RBF | 0.018545 | 0.062460 | 0.864747 | | 0.003767 |

▼ cycle4

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.059617 | 0.031785 | 0.911621 | 0.010311 |
| 1 | DecisionTree | 0.001211 | 0.000558 | 0.999964 | | 0.006236 |
| 2 | RandomForest | 0.006722 | 0.001342 | 0.998876 | | 0.296239 |
| 3 | GradientBoosting | 0.080573 | 0.057697 | 0.838570 | | 0.040237 |
| 4 | XtremeGradientBoost | 0.002280 | 0.001137 | 0.999871 | | 0.063232 |
| 5 | NN | 0.002280 | 0.020117 | 0.959077 | | 10.831666 |
| 6 | DNN | 0.002280 | 0.003681 | 0.998793 | | 14.663463 |
| 7 | SVM Linear | 0.002280 | 0.059745 | 0.855183 | | 0.020802 |
| 8 | SVM RBF | 0.002280 | 0.060142 | 0.880883 | | 0.020802 |

▼ All cycle

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.060844 | 0.033302 | 0.959737 | 0.012954 |
| 1 | DecisionTree | 0.000403 | 0.000159 | 0.999998 | | 0.190220 |
| 2 | RandomForest | 0.000369 | 0.000090 | 0.999999 | | 18.958449 |
| 3 | GradientBoosting | 0.073937 | 0.055630 | 0.940544 | | 0.779537 |
| 4 | XtremeGradientBoost | 0.001340 | 0.000939 | 0.999980 | | 0.605485 |
| 5 | NN | 0.001340 | 0.011843 | 0.998115 | | 35.994191 |
| 6 | DNN | 0.001340 | 0.002704 | 0.999874 | | 98.841980 |
| 7 | SVM Linear | 0.001340 | 0.061790 | 0.929962 | | 9.756984 |
| 8 | SVM RBF | 0.001340 | 0.054659 | 0.955320 | | 9.756984 |

▼ Vah09

▼ Cycle0

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.039337 | 0.021489 | 0.982917 | 0.011965 |
| 1 | DecisionTree | 0.007578 | 0.000313 | 0.999366 | | 0.174240 |
| 2 | RandomForest | 0.005928 | 0.000216 | 0.999612 | | 16.773233 |
| 3 | GradientBoosting | 0.060279 | 0.040683 | 0.959885 | | 0.701043 |
| 4 | XtremeGradientBoost | 0.002844 | 0.000955 | 0.999911 | | 0.492840 |
| 5 | NN | 0.002844 | 0.008305 | 0.998574 | | 32.524362 |
| 6 | DNN | 0.002844 | 0.002601 | 0.999804 | | 97.636280 |
| 7 | SVM Linear | 0.002844 | 0.062300 | 0.928244 | | 7.131520 |
| 8 | SVM RBF | 0.002844 | 0.056032 | 0.953237 | | 7.131520 |

▼ Cycle1

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.019878 | 0.011257 | 0.983979 | 0.006000 |
| 1 | DecisionTree | 0.010087 | 0.004402 | 0.995875 | | 0.003999 |
| 2 | RandomForest | 0.023228 | 0.007233 | 0.978125 | | 0.177049 |
| 3 | GradientBoosting | 0.035693 | 0.022599 | 0.948346 | | 0.016278 |
| 4 | XtremeGradientBoost | 0.010642 | 0.004384 | 0.995409 | | 0.021973 |
| 5 | NN | 0.010642 | 0.024503 | 0.949613 | | 0.841588 |
| 6 | DNN | 0.010642 | 0.020580 | 0.979558 | | 1.877512 |
| 7 | SVM Linear | 0.010642 | 0.062727 | 0.804925 | | 0.003506 |
| 8 | SVM RBF | 0.010642 | 0.051928 | 0.856932 | | 0.003506 |

▼ Cycle2

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.019188 | 0.011377 | 0.984503 | 0.005003 |
| 1 | DecisionTree | 0.010867 | 0.003245 | 0.995030 | | 0.004002 |
| 2 | RandomForest | 0.014676 | 0.004132 | 0.990935 | | 0.183017 |
| 3 | GradientBoosting | 0.038739 | 0.023797 | 0.936838 | | 0.028448 |
| 4 | XtremeGradientBoost | 0.004085 | 0.001975 | 0.999298 | | 0.014402 |
| 5 | NN | 0.004085 | 0.015235 | 0.979259 | | 1.057466 |
| 6 | DNN | 0.004085 | 0.011022 | 0.992152 | | 1.793581 |
| 7 | SVM Linear | 0.004085 | 0.068886 | 0.765945 | | 0.000000 |
| 8 | SVM RBF | 0.004085 | 0.048726 | 0.872894 | | 0.000000 |

▼ Cycle3

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.015087 | 0.010111 | 0.989201 | 0.004200 |
| 1 | DecisionTree | 0.018994 | 0.004202 | 0.982883 | | 0.005027 |
| 2 | RandomForest | 0.011116 | 0.002868 | 0.994138 | | 0.202395 |
| 3 | GradientBoosting | 0.033903 | 0.022969 | 0.945467 | | 0.031059 |
| 4 | XtremeGradientBoost | 0.015876 | 0.006243 | 0.988042 | | 0.015447 |
| 5 | NN | 0.015876 | 0.023569 | 0.957613 | | 1.112436 |
| 6 | DNN | 0.015876 | 0.004307 | 0.997532 | | 1.883140 |

| | | | | | |
|---|------------|----------|----------|----------|----------|
| 7 | SVM Linear | 0.015876 | 0.055724 | 0.805012 | 0.003997 |
| 8 | SVM RBF | 0.015876 | 0.045808 | 0.863332 | 0.003997 |

▼ Cycle4

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.023158 | 0.015788 | 0.984340 | 0.004999 |
| 1 | DecisionTree | 0.019023 | 0.004762 | 0.989433 | | 0.005002 |
| 2 | RandomForest | 0.021234 | 0.008221 | 0.986834 | | 0.185053 |
| 3 | GradientBoosting | 0.043044 | 0.029759 | 0.945896 | | 0.030865 |
| 4 | XtremeGradientBoost | 0.020721 | 0.007385 | 0.987462 | | 0.014741 |
| 5 | NN | 0.020721 | 0.017694 | 0.981999 | | 0.855980 |
| 6 | DNN | 0.020721 | 0.006993 | 0.997367 | | 1.769687 |
| 7 | SVM Linear | 0.020721 | 0.068376 | 0.836353 | | 0.000000 |
| 8 | SVM RBF | 0.020721 | 0.062484 | 0.859609 | | 0.000000 |

▼ All Cycles

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|------------|
| 0 | | ols | 0.048689 | 0.027818 | 0.974793 | 0.011998 |
| 1 | DecisionTree | 0.001111 | 0.000187 | 0.999987 | | 0.177765 |
| 2 | RandomForest | 0.002750 | 0.000187 | 0.999920 | | 18.802881 |
| 3 | GradientBoosting | 0.066328 | 0.046510 | 0.953222 | | 0.744370 |
| 4 | XtremeGradientBoost | 0.001856 | 0.000968 | 0.999963 | | 0.628587 |
| 5 | NN | 0.001856 | 0.006599 | 0.999209 | | 34.486689 |
| 6 | DNN | 0.001856 | 0.002784 | 0.999849 | | 101.532672 |
| 7 | SVM Linear | 0.001856 | 0.062419 | 0.929929 | | 9.468384 |
| 8 | SVM RBF | 0.001856 | 0.056096 | 0.955134 | | 9.468384 |

▼ 70:30 Without Features

▼ Vah01

▼ Cycle0

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|------------|
| 0 | | ols | 0.099490 | 0.069469 | 0.886984 | 0.000000 |
| 1 | DecisionTree | 0.011539 | 0.000408 | 0.998480 | | 0.049699 |
| 2 | RandomForest | 0.011149 | 0.000449 | 0.998581 | | 3.768354 |
| 3 | GradientBoosting | 0.085654 | 0.058765 | 0.916233 | | 0.127354 |
| 4 | XtremeGradientBoost | 0.007775 | 0.001058 | 0.999310 | | 0.286092 |
| 5 | NN | 0.007775 | 0.011396 | 0.996662 | | 30.688426 |
| 6 | DNN | 0.007775 | 0.007232 | 0.998807 | | 102.642048 |
| 7 | SVM Linear | 0.007775 | 0.071597 | 0.882772 | | 5.015329 |
| 8 | SVM RBF | 0.007775 | 0.053707 | 0.955355 | | 5.015329 |

▼ Cycle1

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.052475 | 0.030655 | 0.930175 | 0.000000 |
| 1 | DecisionTree | 0.014058 | 0.001253 | 0.994989 | | 0.000000 |
| 2 | RandomForest | 0.012223 | 0.001317 | 0.996212 | | 0.297466 |
| 3 | GradientBoosting | 0.081138 | 0.056606 | 0.833061 | | 0.016918 |
| 4 | XtremeGradientBoost | 0.013563 | 0.001694 | 0.995335 | | 0.028373 |
| 5 | NN | 0.013563 | 0.019485 | 0.964172 | | 2.954324 |
| 6 | DNN | 0.013563 | 0.088220 | 0.789702 | | 8.896887 |
| 7 | SVM Linear | 0.013563 | 0.059372 | 0.857804 | | 0.034511 |
| 8 | SVM RBF | 0.013563 | 0.061521 | 0.873674 | | 0.034511 |

▼ Cycle2

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.052875 | 0.030847 | 0.929287 | 0.009514 |
| 1 | DecisionTree | 0.014492 | 0.001316 | 0.994688 | | 0.000000 |
| 2 | RandomForest | 0.015084 | 0.001514 | 0.994245 | | 0.305089 |
| 3 | GradientBoosting | 0.080538 | 0.057300 | 0.835940 | | 0.033075 |
| 4 | XtremeGradientBoost | 0.013723 | 0.001800 | 0.995237 | | 0.032087 |
| 5 | NN | 0.013723 | 0.019951 | 0.963212 | | 2.949310 |
| 6 | DNN | 0.013723 | 0.008833 | 0.995919 | | 8.360373 |
| 7 | SVM Linear | 0.013723 | 0.058311 | 0.861180 | | 0.028756 |
| 8 | SVM RBF | 0.013723 | 0.064832 | 0.861361 | | 0.028756 |

▼ Cycle3

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.052743 | 0.030529 | 0.928844 | 0.000000 |
| 1 | DecisionTree | 0.002024 | 0.000664 | 0.999895 | | 0.000000 |
| 2 | RandomForest | 0.003177 | 0.000795 | 0.999742 | | 0.301090 |
| 3 | GradientBoosting | 0.078457 | 0.056392 | 0.842547 | | 0.026233 |
| 4 | XtremeGradientBoost | 0.003293 | 0.001301 | 0.999723 | | 0.034385 |
| 5 | NN | 0.003293 | 0.019812 | 0.965831 | | 3.028005 |
| 6 | DNN | 0.003293 | 0.011900 | 0.992073 | | 8.831527 |
| 7 | SVM Linear | 0.003293 | 0.058517 | 0.860790 | | 0.016134 |
| 8 | SVM RBF | 0.003293 | 0.060832 | 0.874203 | | 0.016134 |

▼ Cycle4

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.053509 | 0.030987 | 0.927894 | 0.000000 |
| 1 | DecisionTree | 0.001189 | 0.000577 | 0.999964 | | 0.000000 |
| 2 | RandomForest | 0.008512 | 0.001314 | 0.998175 | | 0.299668 |
| 3 | GradientBoosting | 0.078508 | 0.056879 | 0.844780 | | 0.033731 |

| | | | | | |
|---|---------------------|----------|----------|----------|----------|
| 4 | XtremeGradientBoost | 0.002375 | 0.001105 | 0.999858 | 0.031453 |
| 5 | NN | 0.002375 | 0.035983 | 0.941654 | 2.936901 |
| 6 | DNN | 0.002375 | 0.008178 | 0.996904 | 9.037880 |
| 7 | SVM Linear | 0.002375 | 0.060010 | 0.859105 | 0.015938 |
| 8 | SVM RBF | 0.002375 | 0.061186 | 0.876116 | 0.015938 |

▼ All Cycles

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|------------|
| 0 | | ols | 0.099436 | 0.066869 | 0.876231 | 0.005999 |
| 1 | DecisionTree | 0.009842 | 0.000447 | 0.998787 | | 0.057171 |
| 2 | RandomForest | 0.010640 | 0.000439 | 0.998583 | | 5.172894 |
| 3 | GradientBoosting | 0.105032 | 0.080344 | 0.861910 | | 0.162133 |
| 4 | XtremeGradientBoost | 0.009793 | 0.001073 | 0.998800 | | 0.345769 |
| 5 | NN | 0.009793 | 0.008549 | 0.996987 | | 42.608991 |
| 6 | DNN | 0.009793 | 0.007020 | 0.998178 | | 135.567787 |
| 7 | SVM Linear | 0.009793 | 0.070519 | 0.874692 | | 7.287535 |
| 8 | SVM RBF | 0.009793 | 0.050554 | 0.954731 | | 7.287535 |

▼ Vah02

▼ Cycle0

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.098921 | 0.069669 | 0.886785 | 0.068806 |
| 1 | DecisionTree | 0.002801 | 0.000251 | 0.999909 | | 0.057509 |
| 2 | RandomForest | 0.003735 | 0.000268 | 0.999839 | | 3.722439 |
| 3 | GradientBoosting | 0.085082 | 0.058800 | 0.916248 | | 0.125746 |
| 4 | XtremeGradientBoost | 0.002357 | 0.000952 | 0.999936 | | 0.313283 |
| 5 | NN | 0.002357 | 0.023704 | 0.991598 | | 32.225939 |
| 6 | DNN | 0.002357 | 0.001720 | 0.999921 | | 99.849750 |
| 7 | SVM Linear | 0.002357 | 0.071878 | 0.884591 | | 5.353770 |
| 8 | SVM RBF | 0.002357 | 0.057824 | 0.950361 | | 5.353770 |

▼ Cycle1

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.060589 | 0.033018 | 0.925724 | 0.000000 |
| 1 | DecisionTree | 0.000959 | 0.000519 | 0.999981 | | 0.000000 |
| 2 | RandomForest | 0.002213 | 0.000519 | 0.999901 | | 0.338331 |
| 3 | GradientBoosting | 0.065298 | 0.052572 | 0.913728 | | 0.016194 |
| 4 | XtremeGradientBoost | 0.002219 | 0.001041 | 0.999900 | | 0.033230 |
| 5 | NN | 0.002219 | 0.021932 | 0.967024 | | 3.238909 |
| 6 | DNN | 0.002219 | 0.023546 | 0.980392 | | 9.310516 |
| 7 | SVM Linear | 0.002219 | 0.056679 | 0.881957 | | 0.036382 |
| 8 | SVM RBF | 0.002219 | 0.060558 | 0.898177 | | 0.036382 |

▼ Cycle2

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.061679 | 0.033187 | 0.923407 | 0.000000 |
| 1 | DecisionTree | 0.019403 | 0.001803 | 0.992421 | | 0.000000 |
| 2 | RandomForest | 0.018577 | 0.001885 | 0.993052 | | 0.337942 |
| 3 | GradientBoosting | 0.064899 | 0.052329 | 0.915201 | | 0.027960 |
| 4 | XtremeGradientBoost | 0.009172 | 0.001664 | 0.998306 | | 0.032694 |
| 5 | NN | 0.009172 | 0.022797 | 0.957241 | | 3.375869 |
| 6 | DNN | 0.009172 | 0.006005 | 0.997394 | | 9.247926 |
| 7 | SVM Linear | 0.009172 | 0.058083 | 0.880864 | | 0.029182 |
| 8 | SVM RBF | 0.009172 | 0.059374 | 0.901230 | | 0.029182 |

▼ Cycle3

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.061407 | 0.032881 | 0.924191 | 0.000000 |
| 1 | DecisionTree | 0.012737 | 0.001085 | 0.996739 | | 0.000000 |
| 2 | RandomForest | 0.014020 | 0.000973 | 0.996048 | | 0.331117 |
| 3 | GradientBoosting | 0.064309 | 0.051850 | 0.916858 | | 0.015347 |
| 4 | XtremeGradientBoost | 0.007953 | 0.001458 | 0.998728 | | 0.030690 |
| 5 | NN | 0.007953 | 0.045895 | 0.940323 | | 3.250968 |
| 6 | DNN | 0.007953 | 0.006330 | 0.997140 | | 9.149167 |
| 7 | SVM Linear | 0.007953 | 0.058278 | 0.881702 | | 0.018370 |
| 8 | SVM RBF | 0.007953 | 0.059532 | 0.900658 | | 0.018370 |

▼ Cycle4

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.060929 | 0.032126 | 0.924052 | 0.000000 |
| 1 | DecisionTree | 0.012865 | 0.001151 | 0.996614 | | 0.000000 |
| 2 | RandomForest | 0.003486 | 0.000649 | 0.999751 | | 0.339434 |
| 3 | GradientBoosting | 0.063758 | 0.051184 | 0.916835 | | 0.015941 |
| 4 | XtremeGradientBoost | 0.002549 | 0.001167 | 0.999867 | | 0.029546 |
| 5 | NN | 0.002549 | 0.019763 | 0.971926 | | 3.311593 |
| 6 | DNN | 0.002549 | 0.004620 | 0.999001 | | 9.013884 |
| 7 | SVM Linear | 0.002549 | 0.057845 | 0.881943 | | 0.030191 |
| 8 | SVM RBF | 0.002549 | 0.059232 | 0.900693 | | 0.030191 |

▼ All Cycles

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.097665 | 0.065327 | 0.879482 | 0.007998 |
| 1 | DecisionTree | 0.001653 | 0.000457 | 0.999965 | | 0.058472 |
| 2 | RandomForest | 0.001414 | 0.000373 | 0.999975 | | 5.274117 |
| 3 | GradientBoosting | 0.098763 | 0.074701 | 0.876759 | | 0.182829 |

| | | | | | |
|---|---------------------|----------|----------|----------|------------|
| 4 | XtremeGradientBoost | 0.002852 | 0.001089 | 0.999897 | 0.361674 |
| 5 | NN | 0.002852 | 0.008604 | 0.997723 | 43.300961 |
| 6 | DNN | 0.002852 | 0.002387 | 0.999851 | 135.622871 |
| 7 | SVM Linear | 0.002852 | 0.068683 | 0.877678 | 9.092692 |
| 8 | SVM RBF | 0.002852 | 0.053260 | 0.951260 | 9.092692 |

▼ Vah05

▼ Cycle0

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.083420 | 0.056400 | 0.923602 | 0.005964 |
| 1 | DecisionTree | 0.012502 | 0.000457 | 0.998284 | | 0.033275 |
| 2 | RandomForest | 0.013079 | 0.000497 | 0.998122 | | 3.386342 |
| 3 | GradientBoosting | 0.076750 | 0.047653 | 0.935330 | | 0.113598 |
| 4 | XtremeGradientBoost | 0.010496 | 0.000958 | 0.998791 | | 0.252535 |
| 5 | NN | 0.010496 | 0.016542 | 0.995614 | | 29.800816 |
| 6 | DNN | 0.010496 | 0.004309 | 0.999610 | | 90.117008 |
| 7 | SVM Linear | 0.010496 | 0.062414 | 0.920424 | | 3.927277 |
| 8 | SVM RBF | 0.010496 | 0.054180 | 0.955317 | | 3.927277 |

▼ Cycle1

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.090042 | 0.062214 | 0.762261 | 0.000000 |
| 1 | DecisionTree | 0.080626 | 0.014745 | 0.809384 | | 0.000000 |
| 2 | RandomForest | 0.050435 | 0.015594 | 0.925412 | | 0.118904 |
| 3 | GradientBoosting | 0.073442 | 0.051338 | 0.841839 | | 0.017205 |
| 4 | XtremeGradientBoost | 0.030918 | 0.008586 | 0.971970 | | 0.020546 |
| 5 | NN | 0.030918 | 0.066365 | 0.748667 | | 0.789243 |
| 6 | DNN | 0.030918 | 0.031564 | 0.907538 | | 1.777316 |
| 7 | SVM Linear | 0.030918 | 0.084285 | 0.681057 | | 0.002314 |
| 8 | SVM RBF | 0.030918 | 0.066500 | 0.845356 | | 0.002314 |

▼ Cycle2

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.092209 | 0.063557 | 0.761368 | 0.000000 |
| 1 | DecisionTree | 0.081222 | 0.015206 | 0.814845 | | 0.002000 |
| 2 | RandomForest | 0.045564 | 0.011725 | 0.941732 | | 0.114443 |
| 3 | GradientBoosting | 0.074723 | 0.054228 | 0.843290 | | 0.016476 |
| 4 | XtremeGradientBoost | 0.033402 | 0.008740 | 0.968686 | | 0.021571 |
| 5 | NN | 0.033402 | 0.072976 | 0.732325 | | 0.793167 |
| 6 | DNN | 0.033402 | 0.078228 | 0.710077 | | 1.752528 |
| 7 | SVM Linear | 0.033402 | 0.086827 | 0.685279 | | 0.000000 |
| 8 | SVM RBF | 0.033402 | 0.063744 | 0.856221 | | 0.000000 |

▼ Cycle3

| Algo | RMSE | MAE | R-Squared | ExecutionTime | |
|------|---------------------|----------|-----------|---------------|----------|
| 0 | | ols | 0.092262 | 0.063832 | 0.761076 |
| 1 | DecisionTree | 0.081225 | 0.015117 | 0.814821 | 0.000000 |
| 2 | RandomForest | 0.036484 | 0.011880 | 0.962639 | 0.117814 |
| 3 | GradientBoosting | 0.074249 | 0.054299 | 0.845260 | 0.016609 |
| 4 | XtremeGradientBoost | 0.026099 | 0.006816 | 0.980881 | 0.013871 |
| 5 | NN | 0.026099 | 0.063691 | 0.766520 | 0.975303 |
| 6 | DNN | 0.026099 | 0.069191 | 0.825877 | 1.836411 |
| 7 | SVM Linear | 0.026099 | 0.086880 | 0.689221 | 0.000554 |
| 8 | SVM RBF | 0.026099 | 0.064004 | 0.855505 | 0.000554 |

▼ Cycle4

| Algo | RMSE | MAE | R-Squared | ExecutionTime | |
|------|---------------------|----------|-----------|---------------|----------|
| 0 | | ols | 0.090806 | 0.062715 | 0.762001 |
| 1 | DecisionTree | 0.081123 | 0.016481 | 0.810050 | 0.000000 |
| 2 | RandomForest | 0.040454 | 0.012040 | 0.952763 | 0.117345 |
| 3 | GradientBoosting | 0.071982 | 0.051668 | 0.850448 | 0.019201 |
| 4 | XtremeGradientBoost | 0.032659 | 0.008112 | 0.969213 | 0.016354 |
| 5 | NN | 0.032659 | 0.064342 | 0.761848 | 0.783177 |
| 6 | DNN | 0.032659 | 0.025596 | 0.926695 | 1.771238 |
| 7 | SVM Linear | 0.032659 | 0.084914 | 0.683427 | 0.000000 |
| 8 | SVM RBF | 0.032659 | 0.065831 | 0.847951 | 0.000000 |

▼ All Cycles

| Algo | RMSE | MAE | R-Squared | ExecutionTime | |
|------|---------------------|----------|-----------|---------------|-----------|
| 0 | | ols | 0.092530 | 0.062701 | 0.908967 |
| 1 | DecisionTree | 0.010748 | 0.000355 | 0.998772 | 0.033283 |
| 2 | RandomForest | 0.006696 | 0.000320 | 0.999523 | 3.557546 |
| 3 | GradientBoosting | 0.082374 | 0.053288 | 0.927854 | 0.127618 |
| 4 | XtremeGradientBoost | 0.003614 | 0.000866 | 0.999861 | 0.320428 |
| 5 | NN | 0.003614 | 0.012006 | 0.996039 | 32.175128 |
| 6 | DNN | 0.003614 | 0.011248 | 0.998127 | 96.073336 |
| 7 | SVM Linear | 0.003614 | 0.066755 | 0.906476 | 3.564178 |
| 8 | SVM RBF | 0.003614 | 0.053426 | 0.957114 | 3.564178 |

▼ Vah07

▼ cycle0

| Algo | RMSE | MAE | R-Squared | ExecutionTime | |
|------|--------------|----------|-----------|---------------|----------|
| 0 | | ols | 0.093137 | 0.058016 | 0.904446 |
| 1 | DecisionTree | 0.002484 | 0.000223 | 0.999932 | 0.074833 |
| 2 | RandomForest | 0.002156 | 0.000215 | 0.999949 | 2.659256 |

| | | | | | |
|---|---------------------|----------|----------|----------|------------|
| 3 | GradientBoosting | 0.077894 | 0.050433 | 0.933164 | 0.122590 |
| 4 | XtremeGradientBoost | 0.001778 | 0.000746 | 0.999965 | 1.153094 |
| 5 | NN | 0.001778 | 0.008315 | 0.997942 | 145.517116 |
| 6 | DNN | 0.001778 | 0.010832 | 0.996331 | 143.170372 |
| 7 | SVM Linear | 0.001778 | 0.063820 | 0.905640 | 1.076346 |
| 8 | SVM RBF | 0.001778 | 0.054902 | 0.956205 | 1.076346 |

▼ cycle1

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.124677 | 0.091066 | 0.704352 | 0.009407 |
| 1 | DecisionTree | 0.023722 | 0.006574 | 0.989297 | | 0.004632 |
| 2 | RandomForest | 0.020990 | 0.007162 | 0.991620 | | 0.227871 |
| 3 | GradientBoosting | 0.063236 | 0.048830 | 0.923943 | | 0.038828 |
| 4 | XtremeGradientBoost | 0.024650 | 0.007526 | 0.988444 | | 0.084063 |
| 5 | NN | 0.024650 | 0.063885 | 0.822660 | | 3.551943 |
| 6 | DNN | 0.024650 | 0.011872 | 0.985040 | | 3.367469 |
| 7 | SVM Linear | 0.024650 | 0.104938 | 0.679060 | | 0.005386 |
| 8 | SVM RBF | 0.024650 | 0.067700 | 0.892860 | | 0.005386 |

▼ cycle2

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.124403 | 0.089885 | 0.701691 | 0.007628 |
| 1 | DecisionTree | 0.014389 | 0.004692 | 0.996009 | | 0.011247 |
| 2 | RandomForest | 0.018935 | 0.005784 | 0.993089 | | 0.151592 |
| 3 | GradientBoosting | 0.061276 | 0.048971 | 0.927625 | | 0.029239 |
| 4 | XtremeGradientBoost | 0.020751 | 0.006618 | 0.991700 | | 0.027138 |
| 5 | NN | 0.020751 | 0.064635 | 0.823414 | | 2.496155 |
| 6 | DNN | 0.020751 | 0.009880 | 0.989713 | | 4.433843 |
| 7 | SVM Linear | 0.020751 | 0.099605 | 0.673868 | | 0.004478 |
| 8 | SVM RBF | 0.020751 | 0.070314 | 0.883264 | | 0.004478 |

▼ cycle3

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.119196 | 0.088771 | 0.732395 | 0.007400 |
| 1 | DecisionTree | 0.040778 | 0.010180 | 0.968680 | | 0.004475 |
| 2 | RandomForest | 0.038136 | 0.009424 | 0.972606 | | 0.140077 |
| 3 | GradientBoosting | 0.069941 | 0.053563 | 0.907862 | | 0.025915 |
| 4 | XtremeGradientBoost | 0.024140 | 0.007512 | 0.989024 | | 0.030731 |
| 5 | NN | 0.024140 | 0.063166 | 0.819642 | | 3.024116 |
| 6 | DNN | 0.024140 | 0.022388 | 0.983924 | | 5.886964 |
| 7 | SVM Linear | 0.024140 | 0.097842 | 0.708763 | | 0.004479 |
| 8 | SVM RBF | 0.024140 | 0.068550 | 0.891289 | | 0.004479 |

▼ cycle4

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.126315 | 0.091954 | 0.688425 | 0.005673 |
| 1 | DecisionTree | 0.030460 | 0.008642 | 0.981882 | | 0.003463 |
| 2 | RandomForest | 0.039415 | 0.010587 | 0.969662 | | 0.142740 |
| 3 | GradientBoosting | 0.066803 | 0.050529 | 0.912856 | | 0.021971 |
| 4 | XtremeGradientBoost | 0.020886 | 0.007247 | 0.991481 | | 0.028192 |
| 5 | NN | 0.020886 | 0.064985 | 0.819774 | | 2.975161 |
| 6 | DNN | 0.020886 | 0.012674 | 0.987807 | | 6.295381 |
| 7 | SVM Linear | 0.020886 | 0.099855 | 0.669158 | | 0.006558 |
| 8 | SVM RBF | 0.020886 | 0.069854 | 0.882729 | | 0.006558 |

▼ All cycles

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.100304 | 0.065193 | 0.892830 | 0.000000 |
| 1 | DecisionTree | 0.010203 | 0.000322 | 0.998891 | | 0.033206 |
| 2 | RandomForest | 0.011952 | 0.000469 | 0.998478 | | 3.588063 |
| 3 | GradientBoosting | 0.096787 | 0.067454 | 0.900214 | | 0.122421 |
| 4 | XtremeGradientBoost | 0.007996 | 0.000965 | 0.999319 | | 0.262573 |
| 5 | NN | 0.007996 | 0.019005 | 0.992841 | | 30.388402 |
| 6 | DNN | 0.007996 | 0.009951 | 0.996854 | | 96.449188 |
| 7 | SVM Linear | 0.007996 | 0.068653 | 0.890972 | | 4.004526 |
| 8 | SVM RBF | 0.007996 | 0.054660 | 0.956830 | | 4.004526 |

▼ Vah09

▼ Cycle0

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.086571 | 0.059850 | 0.918006 | 0.000000 |
| 1 | DecisionTree | 0.003321 | 0.000318 | 0.999879 | | 0.042435 |
| 2 | RandomForest | 0.006395 | 0.000469 | 0.999553 | | 3.407341 |
| 3 | GradientBoosting | 0.075654 | 0.047216 | 0.937383 | | 0.112485 |
| 4 | XtremeGradientBoost | 0.003407 | 0.000851 | 0.999873 | | 0.234822 |
| 5 | NN | 0.003407 | 0.011760 | 0.996678 | | 28.680004 |
| 6 | DNN | 0.003407 | 0.008675 | 0.997968 | | 88.709856 |
| 7 | SVM Linear | 0.003407 | 0.064974 | 0.911672 | | 3.122194 |
| 8 | SVM RBF | 0.003407 | 0.054043 | 0.956134 | | 3.122194 |

▼ Cycle1

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.116704 | 0.081973 | 0.664492 | 0.010330 |
| 1 | DecisionTree | 0.095725 | 0.020192 | 0.774276 | | 0.000000 |
| 2 | RandomForest | 0.065516 | 0.020106 | 0.894263 | | 0.120805 |
| 3 | GradientBoosting | 0.095340 | 0.053525 | 0.776087 | | 0.013826 |
| 4 | XtremeGradientBoost | 0.051453 | 0.014989 | 0.934785 | | 0.021069 |

| | | | | | |
|---|------------|----------|----------|----------|----------|
| 5 | NN | 0.051453 | 0.073524 | 0.712539 | 0.800220 |
| 6 | DNN | 0.051453 | 0.032343 | 0.936426 | 1.742162 |
| 7 | SVM Linear | 0.051453 | 0.096500 | 0.628728 | 0.001170 |
| 8 | SVM RBF | 0.051453 | 0.080999 | 0.804259 | 0.001170 |

▼ Cycle2

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.116676 | 0.081872 | 0.664724 | 0.000000 |
| 1 | DecisionTree | 0.096158 | 0.020793 | 0.772275 | | 0.000000 |
| 2 | RandomForest | 0.062833 | 0.018430 | 0.902768 | | 0.123956 |
| 3 | GradientBoosting | 0.095756 | 0.054185 | 0.774178 | | 0.016444 |
| 4 | XtremeGradientBoost | 0.051732 | 0.015120 | 0.934090 | | 0.019150 |
| 5 | NN | 0.051732 | 0.077893 | 0.695381 | | 0.795781 |
| 6 | DNN | 0.051732 | 0.037958 | 0.891754 | | 1.740111 |
| 7 | SVM Linear | 0.051732 | 0.096866 | 0.629509 | | 0.000000 |
| 8 | SVM RBF | 0.051732 | 0.080917 | 0.804171 | | 0.000000 |

▼ Cycle3

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.117485 | 0.086231 | 0.691623 | 0.004000 |
| 1 | DecisionTree | 0.088988 | 0.016711 | 0.823078 | | 0.004002 |
| 2 | RandomForest | 0.062767 | 0.020550 | 0.911980 | | 0.114398 |
| 3 | GradientBoosting | 0.090802 | 0.051526 | 0.815793 | | 0.019555 |
| 4 | XtremeGradientBoost | 0.054201 | 0.012327 | 0.934365 | | 0.020923 |
| 5 | NN | 0.054201 | 0.075046 | 0.738064 | | 0.800407 |
| 6 | DNN | 0.054201 | 0.046518 | 0.907701 | | 1.751723 |
| 7 | SVM Linear | 0.054201 | 0.099383 | 0.652741 | | 0.000000 |
| 8 | SVM RBF | 0.054201 | 0.089765 | 0.792837 | | 0.000000 |

▼ Cycle4

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.116878 | 0.082326 | 0.663723 | 0.000000 |
| 1 | DecisionTree | 0.095905 | 0.020923 | 0.773583 | | 0.000000 |
| 2 | RandomForest | 0.059384 | 0.017447 | 0.913191 | | 0.116991 |
| 3 | GradientBoosting | 0.088340 | 0.051440 | 0.807891 | | 0.016604 |
| 4 | XtremeGradientBoost | 0.050312 | 0.012151 | 0.937687 | | 0.016373 |
| 5 | NN | 0.050312 | 0.068709 | 0.731083 | | 0.776938 |
| 6 | DNN | 0.050312 | 0.028859 | 0.911389 | | 2.044251 |
| 7 | SVM Linear | 0.050312 | 0.096789 | 0.628605 | | 0.000000 |
| 8 | SVM RBF | 0.050312 | 0.079093 | 0.811304 | | 0.000000 |

▼ All cycle

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|------------|
| 0 | | ols | 0.093769 | 0.063942 | 0.907236 | 0.000000 |
| 1 | DecisionTree | 0.011099 | 0.000377 | 0.998700 | | 0.031799 |
| 2 | RandomForest | 0.011605 | 0.000441 | 0.998579 | | 3.643420 |
| 3 | GradientBoosting | 0.082132 | 0.053321 | 0.928833 | | 0.121597 |
| 4 | XtremeGradientBoost | 0.010116 | 0.000877 | 0.998920 | | 0.268920 |
| 5 | NN | 0.010116 | 0.006957 | 0.998163 | | 31.885481 |
| 6 | DNN | 0.010116 | 0.003277 | 0.999637 | | 102.894524 |
| 7 | SVM Linear | 0.010116 | 0.067368 | 0.905531 | | 3.884635 |
| 8 | SVM RBF | 0.010116 | 0.052562 | 0.958862 | | 3.884635 |

▼ 60:40 with Features

▼ Vah01

▼ cycle0

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.071393 | 0.045964 | 0.942479 | 0.078674 |
| 1 | DecisionTree | 0.001414 | 0.000265 | 0.999977 | | 0.175997 |
| 2 | RandomForest | 0.004580 | 0.000256 | 0.999763 | | 17.836682 |
| 3 | GradientBoosting | 0.074947 | 0.053211 | 0.936609 | | 0.686396 |
| 4 | XtremeGradientBoost | 0.002378 | 0.001227 | 0.999936 | | 0.606718 |
| 5 | NN | 0.002378 | 0.006482 | 0.998905 | | 35.911575 |
| 6 | DNN | 0.002378 | 0.005158 | 0.999559 | | 90.095415 |
| 7 | SVM Linear | 0.002378 | 0.064946 | 0.917824 | | 8.130142 |
| 8 | SVM RBF | 0.002378 | 0.056809 | 0.951644 | | 8.130142 |

▼ cycle1

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.024173 | 0.015522 | 0.975454 | 0.015520 |
| 1 | DecisionTree | 0.003152 | 0.000990 | 0.999583 | | 0.012143 |
| 2 | RandomForest | 0.003764 | 0.000877 | 0.999405 | | 1.196151 |
| 3 | GradientBoosting | 0.061058 | 0.043961 | 0.843397 | | 0.079569 |
| 4 | XtremeGradientBoost | 0.002831 | 0.001718 | 0.999663 | | 0.052495 |
| 5 | NN | 0.002831 | 0.015556 | 0.985334 | | 2.812721 |
| 6 | DNN | 0.002831 | 0.010275 | 0.991803 | | 7.876346 |
| 7 | SVM Linear | 0.002831 | 0.067387 | 0.775783 | | 0.032535 |
| 8 | SVM RBF | 0.002831 | 0.053587 | 0.843877 | | 0.032535 |

▼ cycle2

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|------|-----|-----------|---------------|----------|----------|
| 0 | | ols | 0.019553 | 0.010915 | 0.975045 | 0.013051 |

| | | | | | |
|---|---------------------|----------|----------|----------|----------|
| 1 | DecisionTree | 0.010118 | 0.001111 | 0.993318 | 0.012512 |
| 2 | RandomForest | 0.006954 | 0.001139 | 0.996843 | 1.264189 |
| 3 | GradientBoosting | 0.049700 | 0.032309 | 0.838770 | 0.078088 |
| 4 | XtremeGradientBoost | 0.007765 | 0.002023 | 0.996064 | 0.048930 |
| 5 | NN | 0.007765 | 0.014111 | 0.981441 | 2.932021 |
| 6 | DNN | 0.007765 | 0.021139 | 0.967051 | 7.424008 |
| 7 | SVM Linear | 0.007765 | 0.070912 | 0.634643 | 0.017000 |
| 8 | SVM RBF | 0.007765 | 0.048178 | 0.788917 | 0.017000 |

▼ cycle3

| Algo | RMSE | MAE | R-Squared | ExecutionTime | |
|------|---------------------|----------|-----------|---------------|----------|
| 0 | ols | 0.024752 | 0.016390 | 0.971968 | 0.010476 |
| 1 | DecisionTree | 0.004223 | 0.001180 | 0.999184 | 0.017043 |
| 2 | RandomForest | 0.003364 | 0.000847 | 0.999482 | 1.222960 |
| 3 | GradientBoosting | 0.056209 | 0.040520 | 0.855446 | 0.078719 |
| 4 | XtremeGradientBoost | 0.003700 | 0.001969 | 0.999374 | 0.045548 |
| 5 | NN | 0.003700 | 0.007620 | 0.993660 | 2.858796 |
| 6 | DNN | 0.003700 | 0.015732 | 0.986077 | 8.231558 |
| 7 | SVM Linear | 0.003700 | 0.064269 | 0.772450 | 0.020020 |
| 8 | SVM RBF | 0.003700 | 0.048416 | 0.850758 | 0.020020 |

▼ cycle4

| Algo | RMSE | MAE | R-Squared | ExecutionTime | |
|------|---------------------|----------|-----------|---------------|----------|
| 0 | ols | 0.021843 | 0.013982 | 0.976602 | 0.011514 |
| 1 | DecisionTree | 0.002926 | 0.000953 | 0.999580 | 0.018578 |
| 2 | RandomForest | 0.003534 | 0.000810 | 0.999388 | 1.207253 |
| 3 | GradientBoosting | 0.052681 | 0.034843 | 0.863906 | 0.078187 |
| 4 | XtremeGradientBoost | 0.003430 | 0.001573 | 0.999423 | 0.049976 |
| 5 | NN | 0.003430 | 0.006895 | 0.995216 | 3.013721 |
| 6 | DNN | 0.003430 | 0.020965 | 0.976404 | 7.715142 |
| 7 | SVM Linear | 0.003430 | 0.072946 | 0.708354 | 0.020025 |
| 8 | SVM RBF | 0.003430 | 0.052172 | 0.827716 | 0.020025 |

▼ All Cycles

| Algo | RMSE | MAE | R-Squared | ExecutionTime | |
|------|---------------------|----------|-----------|---------------|------------|
| 0 | ols | 0.071227 | 0.049457 | 0.936937 | 0.012968 |
| 1 | DecisionTree | 0.003377 | 0.000421 | 0.999858 | 0.242017 |
| 2 | RandomForest | 0.002179 | 0.000320 | 0.999941 | 24.306092 |
| 3 | GradientBoosting | 0.086958 | 0.064523 | 0.906006 | 0.912618 |
| 4 | XtremeGradientBoost | 0.002058 | 0.001232 | 0.999947 | 0.776838 |
| 5 | NN | 0.002058 | 0.007351 | 0.998815 | 37.784084 |
| 6 | DNN | 0.002058 | 0.002789 | 0.999764 | 112.686971 |
| 7 | SVM Linear | 0.002058 | 0.067788 | 0.909413 | 11.850355 |
| 8 | SVM RBF | 0.002058 | 0.054345 | 0.950205 | 11.850355 |

▼ Vah02

▼ cycle0

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.069203 | 0.047521 | 0.945386 | 0.016743 |
| 1 | DecisionTree | 0.002507 | 0.000242 | 0.999928 | | 0.160698 |
| 2 | RandomForest | 0.002532 | 0.000195 | 0.999927 | | 16.982224 |
| 3 | GradientBoosting | 0.072492 | 0.051586 | 0.940070 | | 0.664924 |
| 4 | XtremeGradientBoost | 0.001902 | 0.001119 | 0.999959 | | 0.563241 |
| 5 | NN | 0.001902 | 0.007681 | 0.998775 | | 30.705777 |
| 6 | DNN | 0.001902 | 0.004163 | 0.999647 | | 88.000345 |
| 7 | SVM Linear | 0.001902 | 0.065038 | 0.918098 | | 7.001627 |
| 8 | SVM RBF | 0.001902 | 0.056599 | 0.950740 | | 7.001627 |

▼ cycle1

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.024740 | 0.017112 | 0.981014 | 0.011998 |
| 1 | DecisionTree | 0.001078 | 0.000738 | 0.999964 | | 0.017964 |
| 2 | RandomForest | 0.013333 | 0.001812 | 0.994486 | | 1.335949 |
| 3 | GradientBoosting | 0.061626 | 0.043754 | 0.882200 | | 0.089251 |
| 4 | XtremeGradientBoost | 0.012002 | 0.002211 | 0.995532 | | 0.055168 |
| 5 | NN | 0.012002 | 0.012651 | 0.993947 | | 3.215353 |
| 6 | DNN | 0.012002 | 0.005835 | 0.998344 | | 8.888485 |
| 7 | SVM Linear | 0.012002 | 0.075693 | 0.798635 | | 0.054370 |
| 8 | SVM RBF | 0.012002 | 0.053929 | 0.878226 | | 0.054370 |

▼ cycle2

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.024176 | 0.012034 | 0.969376 | 0.011998 |
| 1 | DecisionTree | 0.014696 | 0.001623 | 0.988685 | | 0.019274 |
| 2 | RandomForest | 0.016014 | 0.002237 | 0.986564 | | 1.378331 |
| 3 | GradientBoosting | 0.054340 | 0.033849 | 0.845289 | | 0.079663 |
| 4 | XtremeGradientBoost | 0.009461 | 0.002006 | 0.995310 | | 0.051535 |
| 5 | NN | 0.009461 | 0.008657 | 0.992001 | | 3.346456 |
| 6 | DNN | 0.009461 | 0.033674 | 0.935504 | | 8.315187 |
| 7 | SVM Linear | 0.009461 | 0.066132 | 0.735899 | | 0.020432 |
| 8 | SVM RBF | 0.009461 | 0.041503 | 0.863175 | | 0.020432 |

▼ cycle3

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|--------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.026971 | 0.017136 | 0.976997 | 0.010995 |
| 1 | DecisionTree | 0.001726 | 0.001042 | 0.999906 | | 0.019201 |

| | | | | | |
|---|---------------------|----------|----------|----------|----------|
| 2 | RandomForest | 0.004134 | 0.000976 | 0.999460 | 1.337949 |
| 3 | GradientBoosting | 0.065100 | 0.046997 | 0.865990 | 0.082942 |
| 4 | XtremeGradientBoost | 0.002862 | 0.001637 | 0.999741 | 0.052157 |
| 5 | NN | 0.002862 | 0.009863 | 0.995426 | 3.126379 |
| 6 | DNN | 0.002862 | 0.013878 | 0.992391 | 8.239682 |
| 7 | SVM Linear | 0.002862 | 0.073602 | 0.802658 | 0.059204 |
| 8 | SVM RBF | 0.002862 | 0.053207 | 0.877040 | 0.059204 |

▼ cycle4

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.021695 | 0.012377 | 0.975347 | 0.010998 |
| 1 | DecisionTree | 0.023356 | 0.002774 | 0.971428 | | 0.018481 |
| 2 | RandomForest | 0.008543 | 0.002084 | 0.996177 | | 1.377829 |
| 3 | GradientBoosting | 0.050622 | 0.032805 | 0.865779 | | 0.086307 |
| 4 | XtremeGradientBoost | 0.003024 | 0.001848 | 0.999521 | | 0.052035 |
| 5 | NN | 0.003024 | 0.012530 | 0.988321 | | 3.175402 |
| 6 | DNN | 0.003024 | 0.007559 | 0.995099 | | 8.443557 |
| 7 | SVM Linear | 0.003024 | 0.066532 | 0.736000 | | 0.031614 |
| 8 | SVM RBF | 0.003024 | 0.042759 | 0.857487 | | 0.031614 |

▼ All Cycle

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|------------|
| 0 | | ols | 0.068904 | 0.048060 | 0.939319 | 0.011997 |
| 1 | DecisionTree | 0.001449 | 0.000427 | 0.999973 | | 0.249833 |
| 2 | RandomForest | 0.001060 | 0.000318 | 0.999986 | | 25.491948 |
| 3 | GradientBoosting | 0.084022 | 0.061879 | 0.909770 | | 0.962162 |
| 4 | XtremeGradientBoost | 0.002081 | 0.001257 | 0.999945 | | 0.776635 |
| 5 | NN | 0.002081 | 0.007013 | 0.998896 | | 41.886957 |
| 6 | DNN | 0.002081 | 0.002925 | 0.999759 | | 123.682889 |
| 7 | SVM Linear | 0.002081 | 0.065098 | 0.914440 | | 11.769759 |
| 8 | SVM RBF | 0.002081 | 0.055384 | 0.947474 | | 11.769759 |

▼ Vah05

▼ cycle0

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.035874 | 0.020166 | 0.985844 | 0.011002 |
| 1 | DecisionTree | 0.006705 | 0.000252 | 0.999505 | | 0.147713 |
| 2 | RandomForest | 0.006470 | 0.000188 | 0.999540 | | 14.601279 |
| 3 | GradientBoosting | 0.059836 | 0.040061 | 0.960619 | | 0.663567 |
| 4 | XtremeGradientBoost | 0.006695 | 0.001029 | 0.999507 | | 0.485640 |
| 5 | NN | 0.006695 | 0.009026 | 0.998603 | | 29.050596 |
| 6 | DNN | 0.006695 | 0.004018 | 0.999674 | | 85.491330 |

| | | | | | |
|---|------------|----------|----------|----------|----------|
| 7 | SVM Linear | 0.006695 | 0.061248 | 0.930667 | 5.770040 |
| 8 | SVM RBF | 0.006695 | 0.055333 | 0.954558 | 5.770040 |

▼ cycle1

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.036342 | 0.011182 | 0.907090 | 0.006000 |
| 1 | DecisionTree | 0.028224 | 0.004868 | 0.943962 | | 0.004028 |
| 2 | RandomForest | 0.019247 | 0.005527 | 0.973942 | | 0.168945 |
| 3 | GradientBoosting | 0.033025 | 0.020651 | 0.923278 | | 0.018729 |
| 4 | XtremeGradientBoost | 0.014950 | 0.004643 | 0.984277 | | 0.020629 |
| 5 | NN | 0.014950 | 0.019460 | 0.947818 | | 0.787592 |
| 6 | DNN | 0.014950 | 0.009813 | 0.988091 | | 1.572248 |
| 7 | SVM Linear | 0.014950 | 0.060145 | 0.693983 | | 0.000000 |
| 8 | SVM RBF | 0.014950 | 0.069551 | 0.622017 | | 0.000000 |

▼ cycle2

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.015216 | 0.010495 | 0.986125 | 0.010005 |
| 1 | DecisionTree | 0.059227 | 0.012504 | 0.789783 | | 0.000000 |
| 2 | RandomForest | 0.037739 | 0.010398 | 0.914646 | | 0.185541 |
| 3 | GradientBoosting | 0.048861 | 0.028479 | 0.856928 | | 0.026197 |
| 4 | XtremeGradientBoost | 0.018795 | 0.006051 | 0.978830 | | 0.019754 |
| 5 | NN | 0.018795 | 0.025514 | 0.930859 | | 1.035546 |
| 6 | DNN | 0.018795 | 0.012372 | 0.987677 | | 1.680803 |
| 7 | SVM Linear | 0.018795 | 0.055303 | 0.747557 | | 0.000000 |
| 8 | SVM RBF | 0.018795 | 0.064317 | 0.708751 | | 0.000000 |

▼ cycle3

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.034298 | 0.010913 | 0.940078 | 0.004304 |
| 1 | DecisionTree | 0.053035 | 0.013864 | 0.856725 | | 0.000000 |
| 2 | RandomForest | 0.034487 | 0.009858 | 0.939418 | | 0.190468 |
| 3 | GradientBoosting | 0.044177 | 0.031466 | 0.900591 | | 0.026796 |
| 4 | XtremeGradientBoost | 0.025688 | 0.009129 | 0.966388 | | 0.026064 |
| 5 | NN | 0.025688 | 0.024158 | 0.952324 | | 0.800811 |
| 6 | DNN | 0.025688 | 0.026880 | 0.954431 | | 1.649677 |
| 7 | SVM Linear | 0.025688 | 0.063110 | 0.749380 | | 0.000000 |
| 8 | SVM RBF | 0.025688 | 0.065251 | 0.749948 | | 0.000000 |

▼ cycle4

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|------|-----|-----------|---------------|----------|----------|
| 0 | | ols | 0.017604 | 0.014821 | 0.985027 | 0.015353 |

| | | | | | |
|---|---------------------|----------|----------|----------|----------|
| 1 | DecisionTree | 0.031840 | 0.006154 | 0.951021 | 0.000000 |
| 2 | RandomForest | 0.022974 | 0.004696 | 0.974499 | 0.175253 |
| 3 | GradientBoosting | 0.041671 | 0.028616 | 0.916103 | 0.046747 |
| 4 | XtremeGradientBoost | 0.012546 | 0.004290 | 0.992395 | 0.015621 |
| 5 | NN | 0.012546 | 0.025558 | 0.950062 | 0.940684 |
| 6 | DNN | 0.012546 | 0.015352 | 0.982992 | 1.583643 |
| 7 | SVM Linear | 0.012546 | 0.060049 | 0.786540 | 0.005007 |
| 8 | SVM RBF | 0.012546 | 0.074384 | 0.710467 | 0.005007 |

▼ All Cycles

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.044614 | 0.024252 | 0.978588 | 0.009967 |
| 1 | DecisionTree | 0.004497 | 0.000254 | 0.999782 | | 0.158203 |
| 2 | RandomForest | 0.003449 | 0.000217 | 0.999872 | | 15.434876 |
| 3 | GradientBoosting | 0.064354 | 0.046134 | 0.955446 | | 0.636113 |
| 4 | XtremeGradientBoost | 0.004033 | 0.001134 | 0.999825 | | 0.547709 |
| 5 | NN | 0.004033 | 0.008322 | 0.998290 | | 28.925087 |
| 6 | DNN | 0.004033 | 0.003411 | 0.999790 | | 84.390459 |
| 7 | SVM Linear | 0.004033 | 0.061896 | 0.928803 | | 6.029190 |
| 8 | SVM RBF | 0.004033 | 0.055158 | 0.956207 | | 6.029190 |

▼ Vah07

▼ cycle0

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.046763 | 0.025578 | 0.975875 | 0.000000 |
| 1 | DecisionTree | 0.006503 | 0.000319 | 0.999533 | | 0.145747 |
| 2 | RandomForest | 0.006699 | 0.000234 | 0.999505 | | 14.540566 |
| 3 | GradientBoosting | 0.066810 | 0.045215 | 0.950757 | | 0.597816 |
| 4 | XtremeGradientBoost | 0.003775 | 0.001092 | 0.999843 | | 0.485143 |
| 5 | NN | 0.003775 | 0.018105 | 0.995594 | | 27.970764 |
| 6 | DNN | 0.003775 | 0.009643 | 0.998239 | | 81.306347 |
| 7 | SVM Linear | 0.003775 | 0.061089 | 0.929830 | | 5.815952 |
| 8 | SVM RBF | 0.003775 | 0.054687 | 0.954514 | | 5.815952 |

▼ cycle1

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.020192 | 0.012327 | 0.984455 | 0.004511 |
| 1 | DecisionTree | 0.047753 | 0.011265 | 0.913051 | | 0.004000 |
| 2 | RandomForest | 0.022080 | 0.006254 | 0.981411 | | 0.185094 |
| 3 | GradientBoosting | 0.036238 | 0.020180 | 0.949930 | | 0.026249 |
| 4 | XtremeGradientBoost | 0.024666 | 0.006853 | 0.976802 | | 0.018798 |
| 5 | NN | 0.024666 | 0.018785 | 0.977527 | | 0.816335 |

| | | | | | |
|---|------------|----------|----------|----------|----------|
| 6 | DNN | 0.024666 | 0.003997 | 0.997118 | 1.888838 |
| 7 | SVM Linear | 0.024666 | 0.049673 | 0.866525 | 0.001117 |
| 8 | SVM RBF | 0.024666 | 0.055934 | 0.857941 | 0.001117 |

▼ cycle2

| Algo | RMSE | MAE | R-Squared | ExecutionTime | |
|------|---------------------|----------|-----------|---------------|----------|
| 0 | ols | 0.026973 | 0.014234 | 0.967593 | 0.004503 |
| 1 | DecisionTree | 0.007603 | 0.003394 | 0.997425 | 0.004000 |
| 2 | RandomForest | 0.010843 | 0.004071 | 0.994763 | 0.193841 |
| 3 | GradientBoosting | 0.033126 | 0.026539 | 0.951122 | 0.017437 |
| 4 | XtremeGradientBoost | 0.010236 | 0.005418 | 0.995333 | 0.025619 |
| 5 | NN | 0.010236 | 0.019881 | 0.969826 | 0.817815 |
| 6 | DNN | 0.010236 | 0.018832 | 0.981496 | 1.714340 |
| 7 | SVM Linear | 0.010236 | 0.053977 | 0.825473 | 0.004507 |
| 8 | SVM RBF | 0.010236 | 0.062396 | 0.800030 | 0.004507 |

▼ cycle3

| Algo | RMSE | MAE | R-Squared | ExecutionTime | |
|------|---------------------|----------|-----------|---------------|----------|
| 0 | ols | 0.018288 | 0.013815 | 0.990222 | 0.003998 |
| 1 | DecisionTree | 0.027415 | 0.005313 | 0.978027 | 0.004037 |
| 2 | RandomForest | 0.022533 | 0.004946 | 0.985157 | 0.168329 |
| 3 | GradientBoosting | 0.032990 | 0.020914 | 0.968182 | 0.023370 |
| 4 | XtremeGradientBoost | 0.016713 | 0.005266 | 0.991834 | 0.028958 |
| 5 | NN | 0.016713 | 0.013644 | 0.991247 | 0.814304 |
| 6 | DNN | 0.016713 | 0.006184 | 0.998102 | 1.707149 |
| 7 | SVM Linear | 0.016713 | 0.053424 | 0.889229 | 0.000000 |
| 8 | SVM RBF | 0.016713 | 0.064021 | 0.861091 | 0.000000 |

▼ cycle4

| Algo | RMSE | MAE | R-Squared | ExecutionTime | |
|------|---------------------|----------|-----------|---------------|----------|
| 0 | ols | 0.024316 | 0.013993 | 0.977062 | 0.010737 |
| 1 | DecisionTree | 0.047850 | 0.009738 | 0.911179 | 0.000000 |
| 2 | RandomForest | 0.026047 | 0.007911 | 0.973681 | 0.186935 |
| 3 | GradientBoosting | 0.038011 | 0.022907 | 0.943949 | 0.032662 |
| 4 | XtremeGradientBoost | 0.024115 | 0.007095 | 0.977440 | 0.009865 |
| 5 | NN | 0.024115 | 0.019361 | 0.970357 | 0.854204 |
| 6 | DNN | 0.024115 | 0.005905 | 0.995778 | 1.928761 |
| 7 | SVM Linear | 0.024115 | 0.050931 | 0.856752 | 0.000000 |
| 8 | SVM RBF | 0.024115 | 0.062323 | 0.823468 | 0.000000 |

▼ All Cycles

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.059463 | 0.033289 | 0.961641 | 0.010998 |
| 1 | DecisionTree | 0.000538 | 0.000176 | 0.999997 | | 0.170346 |
| 2 | RandomForest | 0.000474 | 0.000108 | 0.999998 | | 16.457490 |
| 3 | GradientBoosting | 0.074143 | 0.055876 | 0.940363 | | 0.665374 |
| 4 | XtremeGradientBoost | 0.001410 | 0.000968 | 0.999978 | | 0.575371 |
| 5 | NN | 0.001410 | 0.009422 | 0.998525 | | 35.677559 |
| 6 | DNN | 0.001410 | 0.008170 | 0.998640 | | 96.746341 |
| 7 | SVM Linear | 0.001410 | 0.062084 | 0.929524 | | 7.959948 |
| 8 | SVM RBF | 0.001410 | 0.054574 | 0.955337 | | 7.959948 |

▼ Vah09

▼ cycle0

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.038264 | 0.021359 | 0.983952 | 0.000000 |
| 1 | DecisionTree | 0.006568 | 0.000289 | 0.999527 | | 0.149106 |
| 2 | RandomForest | 0.005321 | 0.000210 | 0.999690 | | 14.292724 |
| 3 | GradientBoosting | 0.060469 | 0.040975 | 0.959922 | | 0.604464 |
| 4 | XtremeGradientBoost | 0.002810 | 0.000992 | 0.999913 | | 0.445563 |
| 5 | NN | 0.002810 | 0.010216 | 0.998306 | | 27.883499 |
| 6 | DNN | 0.002810 | 0.015631 | 0.996194 | | 83.140224 |
| 7 | SVM Linear | 0.002810 | 0.062128 | 0.929643 | | 5.671671 |
| 8 | SVM RBF | 0.002810 | 0.055880 | 0.953761 | | 5.671671 |

▼ cycle1

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.019128 | 0.011271 | 0.984375 | 0.000000 |
| 1 | DecisionTree | 0.009028 | 0.003875 | 0.996519 | | 0.000000 |
| 2 | RandomForest | 0.024231 | 0.007419 | 0.974925 | | 0.177738 |
| 3 | GradientBoosting | 0.034406 | 0.021724 | 0.949447 | | 0.030031 |
| 4 | XtremeGradientBoost | 0.014669 | 0.005632 | 0.990811 | | 0.022272 |
| 5 | NN | 0.014669 | 0.024725 | 0.947276 | | 0.858254 |
| 6 | DNN | 0.014669 | 0.007578 | 0.995511 | | 1.666250 |
| 7 | SVM Linear | 0.014669 | 0.063374 | 0.784121 | | 0.000000 |
| 8 | SVM RBF | 0.014669 | 0.051684 | 0.852264 | | 0.000000 |

▼ cycle2

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|--------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.017960 | 0.011080 | 0.987065 | 0.000000 |
| 1 | DecisionTree | 0.005542 | 0.002346 | 0.998769 | | 0.000000 |
| 2 | RandomForest | 0.016529 | 0.004641 | 0.989045 | | 0.180474 |

| | | | | | |
|---|---------------------|----------|----------|----------|----------|
| 3 | GradientBoosting | 0.038485 | 0.022642 | 0.940609 | 0.023719 |
| 4 | XtremeGradientBoost | 0.007301 | 0.003492 | 0.997863 | 0.019450 |
| 5 | NN | 0.007301 | 0.018851 | 0.973050 | 0.813211 |
| 6 | DNN | 0.007301 | 0.009955 | 0.993243 | 1.910655 |
| 7 | SVM Linear | 0.007301 | 0.066233 | 0.789163 | 0.000000 |
| 8 | SVM RBF | 0.007301 | 0.052274 | 0.864492 | 0.000000 |

▼ cycle3

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.018361 | 0.011306 | 0.984714 | 0.010005 |
| 1 | DecisionTree | 0.007546 | 0.002858 | 0.997418 | | 0.000000 |
| 2 | RandomForest | 0.005794 | 0.002341 | 0.998478 | | 0.198447 |
| 3 | GradientBoosting | 0.031403 | 0.022422 | 0.955287 | | 0.020193 |
| 4 | XtremeGradientBoost | 0.009419 | 0.004578 | 0.995977 | | 0.020262 |
| 5 | NN | 0.009419 | 0.016513 | 0.977922 | | 0.807573 |
| 6 | DNN | 0.009419 | 0.006586 | 0.996746 | | 1.707295 |
| 7 | SVM Linear | 0.009419 | 0.057901 | 0.804198 | | 0.004001 |
| 8 | SVM RBF | 0.009419 | 0.047165 | 0.861624 | | 0.004001 |

▼ cycle4

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.025915 | 0.016290 | 0.979812 | 0.000000 |
| 1 | DecisionTree | 0.069646 | 0.018326 | 0.854189 | | 0.000000 |
| 2 | RandomForest | 0.052892 | 0.014875 | 0.915904 | | 0.190905 |
| 3 | GradientBoosting | 0.046377 | 0.030683 | 0.935344 | | 0.027240 |
| 4 | XtremeGradientBoost | 0.048332 | 0.014078 | 0.929779 | | 0.019217 |
| 5 | NN | 0.048332 | 0.023506 | 0.966835 | | 0.885775 |
| 6 | DNN | 0.048332 | 0.007972 | 0.996902 | | 1.721375 |
| 7 | SVM Linear | 0.048332 | 0.066694 | 0.837570 | | 0.001000 |
| 8 | SVM RBF | 0.048332 | 0.067454 | 0.842323 | | 0.001000 |

▼ All cycle

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|------------|
| 0 | | ols | 0.047364 | 0.028115 | 0.976025 | 0.018628 |
| 1 | DecisionTree | 0.000412 | 0.000143 | 0.999998 | | 0.232924 |
| 2 | RandomForest | 0.003824 | 0.000213 | 0.999844 | | 21.286285 |
| 3 | GradientBoosting | 0.065940 | 0.046609 | 0.953532 | | 0.862463 |
| 4 | XtremeGradientBoost | 0.001719 | 0.000922 | 0.999968 | | 0.691617 |
| 5 | NN | 0.001719 | 0.017862 | 0.995784 | | 41.049215 |
| 6 | DNN | 0.001719 | 0.013758 | 0.996764 | | 115.171091 |
| 7 | SVM Linear | 0.001719 | 0.062322 | 0.929936 | | 11.591150 |
| 8 | SVM RBF | 0.001719 | 0.055934 | 0.954999 | | 11.591150 |

▼ 60:40 Without Features

▼ Vah01

▼ Cycle0

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.099817 | 0.069473 | 0.886539 | 0.006711 |
| 1 | DecisionTree | 0.010732 | 0.000441 | 0.998688 | | 0.037762 |
| 2 | RandomForest | 0.010122 | 0.000430 | 0.998833 | | 3.152555 |
| 3 | GradientBoosting | 0.087319 | 0.058454 | 0.913173 | | 0.110025 |
| 4 | XtremeGradientBoost | 0.006854 | 0.001096 | 0.999465 | | 0.253231 |
| 5 | NN | 0.006854 | 0.009985 | 0.997081 | | 26.976034 |
| 6 | DNN | 0.006854 | 0.003917 | 0.999580 | | 84.440331 |
| 7 | SVM Linear | 0.006854 | 0.071797 | 0.883456 | | 2.942298 |
| 8 | SVM RBF | 0.006854 | 0.054888 | 0.954038 | | 2.942298 |

▼ Cycle1

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.052808 | 0.030640 | 0.927290 | 0.004967 |
| 1 | DecisionTree | 0.013708 | 0.001433 | 0.995100 | | 0.005037 |
| 2 | RandomForest | 0.012907 | 0.002138 | 0.995656 | | 0.259766 |
| 3 | GradientBoosting | 0.080865 | 0.055645 | 0.829501 | | 0.026458 |
| 4 | XtremeGradientBoost | 0.010750 | 0.001912 | 0.996987 | | 0.025803 |
| 5 | NN | 0.010750 | 0.022039 | 0.956142 | | 2.580418 |
| 6 | DNN | 0.010750 | 0.031003 | 0.969141 | | 7.324967 |
| 7 | SVM Linear | 0.010750 | 0.057388 | 0.857938 | | 0.023997 |
| 8 | SVM RBF | 0.010750 | 0.062134 | 0.865779 | | 0.023997 |

▼ Cycle2

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.053459 | 0.030778 | 0.925022 | 0.004000 |
| 1 | DecisionTree | 0.015566 | 0.001623 | 0.993643 | | 0.006003 |
| 2 | RandomForest | 0.013556 | 0.001736 | 0.995179 | | 0.251516 |
| 3 | GradientBoosting | 0.080652 | 0.056064 | 0.829345 | | 0.019522 |
| 4 | XtremeGradientBoost | 0.012120 | 0.001873 | 0.996146 | | 0.036584 |
| 5 | NN | 0.012120 | 0.026461 | 0.950116 | | 2.600559 |
| 6 | DNN | 0.012120 | 0.007093 | 0.989341 | | 7.597733 |
| 7 | SVM Linear | 0.012120 | 0.056720 | 0.860092 | | 0.019157 |
| 8 | SVM RBF | 0.012120 | 0.063732 | 0.860148 | | 0.019157 |

▼ Cycle3

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.054321 | 0.031218 | 0.923261 | 0.005005 |
| 1 | DecisionTree | 0.016342 | 0.001655 | 0.993055 | | 0.005002 |
| 2 | RandomForest | 0.008584 | 0.001395 | 0.998084 | | 0.257951 |
| 3 | GradientBoosting | 0.079175 | 0.055782 | 0.836976 | | 0.023654 |
| 4 | XtremeGradientBoost | 0.006358 | 0.001720 | 0.998949 | | 0.020476 |
| 5 | NN | 0.006358 | 0.025287 | 0.954978 | | 2.600888 |
| 6 | DNN | 0.006358 | 0.007310 | 0.996154 | | 8.000943 |
| 7 | SVM Linear | 0.006358 | 0.055949 | 0.861348 | | 0.015776 |
| 8 | SVM RBF | 0.006358 | 0.063883 | 0.859658 | | 0.015776 |

▼ Cycle4

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.054023 | 0.031337 | 0.924506 | 0.005976 |
| 1 | DecisionTree | 0.005977 | 0.000908 | 0.999076 | | 0.005032 |
| 2 | RandomForest | 0.014771 | 0.002133 | 0.994356 | | 0.250931 |
| 3 | GradientBoosting | 0.078540 | 0.055588 | 0.840436 | | 0.014653 |
| 4 | XtremeGradientBoost | 0.004666 | 0.001499 | 0.999437 | | 0.023565 |
| 5 | NN | 0.004666 | 0.030232 | 0.941424 | | 2.595794 |
| 6 | DNN | 0.004666 | 0.006140 | 0.997084 | | 7.338830 |
| 7 | SVM Linear | 0.004666 | 0.055674 | 0.862684 | | 0.015820 |
| 8 | SVM RBF | 0.004666 | 0.063627 | 0.861775 | | 0.015820 |

▼ All Cycles

| | Algo | RMSE | MAE | R-Squared | ExecutionTime |
|---|---------------------|----------|----------|-----------|---------------|
| 0 | ols | 0.098146 | 0.066367 | 0.878009 | 0.006995 |
| 1 | DecisionTree | 0.008583 | 0.000435 | 0.999067 | 0.047503 |
| 2 | RandomForest | 0.008816 | 0.000406 | 0.999016 | 4.419778 |
| 3 | GradientBoosting | 0.103592 | 0.079981 | 0.864092 | 0.136066 |
| 4 | XtremeGradientBoost | 0.008759 | 0.001095 | 0.999028 | 0.313849 |
| 5 | NN | 0.008759 | 0.012518 | 0.995143 | 35.409933 |
| 6 | DNN | 0.008759 | 0.005327 | 0.998940 | 109.714596 |
| 7 | SVM Linear | 0.008759 | 0.069941 | 0.876289 | 5.542896 |
| 8 | SVM RBF | 0.008759 | 0.051917 | 0.952650 | 5.542896 |

▼ Vah02

▼ Cycle0

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|--------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.098888 | 0.069643 | 0.887924 | 0.011630 |
| 1 | DecisionTree | 0.003046 | 0.000276 | 0.999894 | | 0.034760 |
| 2 | RandomForest | 0.004069 | 0.000304 | 0.999810 | | 3.275272 |

| | | | | | |
|---|---------------------|----------|----------|----------|-----------|
| 3 | GradientBoosting | 0.084695 | 0.059278 | 0.917787 | 0.109144 |
| 4 | XtremeGradientBoost | 0.002980 | 0.001039 | 0.999898 | 0.253963 |
| 5 | NN | 0.002980 | 0.014536 | 0.996088 | 27.022067 |
| 6 | DNN | 0.002980 | 0.003199 | 0.999635 | 87.920368 |
| 7 | SVM Linear | 0.002980 | 0.071792 | 0.885670 | 3.410322 |
| 8 | SVM RBF | 0.002980 | 0.057959 | 0.950535 | 3.410322 |

▼ Cycle1

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.063850 | 0.033097 | 0.916517 | 0.003998 |
| 1 | DecisionTree | 0.001187 | 0.000619 | 0.999971 | | 0.004224 |
| 2 | RandomForest | 0.001566 | 0.000525 | 0.999950 | | 0.281884 |
| 3 | GradientBoosting | 0.065980 | 0.051922 | 0.910857 | | 0.013539 |
| 4 | XtremeGradientBoost | 0.002584 | 0.001248 | 0.999863 | | 0.021484 |
| 5 | NN | 0.002584 | 0.031424 | 0.947261 | | 2.909998 |
| 6 | DNN | 0.002584 | 0.004699 | 0.997782 | | 8.600945 |
| 7 | SVM Linear | 0.002584 | 0.055653 | 0.878895 | | 0.015034 |
| 8 | SVM RBF | 0.002584 | 0.060116 | 0.898698 | | 0.015034 |

▼ Cycle2

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.064999 | 0.033329 | 0.914130 | 0.000000 |
| 1 | DecisionTree | 0.018330 | 0.001822 | 0.993171 | | 0.000000 |
| 2 | RandomForest | 0.014906 | 0.001536 | 0.995484 | | 0.283767 |
| 3 | GradientBoosting | 0.065942 | 0.051726 | 0.911620 | | 0.033241 |
| 4 | XtremeGradientBoost | 0.007430 | 0.001576 | 0.998878 | | 0.029690 |
| 5 | NN | 0.007430 | 0.021610 | 0.960907 | | 3.113558 |
| 6 | DNN | 0.007430 | 0.004824 | 0.998142 | | 8.215499 |
| 7 | SVM Linear | 0.007430 | 0.057326 | 0.877270 | | 0.015935 |
| 8 | SVM RBF | 0.007430 | 0.059423 | 0.900413 | | 0.015935 |

▼ Cycle3

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.064673 | 0.032994 | 0.915111 | 0.004942 |
| 1 | DecisionTree | 0.010996 | 0.000996 | 0.997546 | | 0.004374 |
| 2 | RandomForest | 0.012320 | 0.000939 | 0.996920 | | 0.279572 |
| 3 | GradientBoosting | 0.065844 | 0.051934 | 0.912009 | | 0.019038 |
| 4 | XtremeGradientBoost | 0.006793 | 0.001321 | 0.999064 | | 0.031249 |
| 5 | NN | 0.006793 | 0.019732 | 0.961354 | | 2.880382 |
| 6 | DNN | 0.006793 | 0.019994 | 0.987968 | | 8.758119 |
| 7 | SVM Linear | 0.006793 | 0.057644 | 0.877394 | | 0.013709 |
| 8 | SVM RBF | 0.006793 | 0.059377 | 0.900564 | | 0.013709 |

▼ Cycle4

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.064469 | 0.032391 | 0.914692 | 0.004946 |
| 1 | DecisionTree | 0.012324 | 0.001145 | 0.996883 | | 0.006000 |
| 2 | RandomForest | 0.011408 | 0.001264 | 0.997329 | | 0.279324 |
| 3 | GradientBoosting | 0.065079 | 0.051750 | 0.913069 | | 0.016714 |
| 4 | XtremeGradientBoost | 0.004481 | 0.001421 | 0.999588 | | 0.015862 |
| 5 | NN | 0.004481 | 0.021756 | 0.959132 | | 2.877609 |
| 6 | DNN | 0.004481 | 0.021164 | 0.968602 | | 9.631327 |
| 7 | SVM Linear | 0.004481 | 0.057838 | 0.876948 | | 0.015775 |
| 8 | SVM RBF | 0.004481 | 0.059103 | 0.900639 | | 0.015775 |

▼ All cycles

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|------------|
| 0 | | ols | 0.097997 | 0.065674 | 0.878554 | 0.000000 |
| 1 | DecisionTree | 0.001634 | 0.000460 | 0.999966 | | 0.051966 |
| 2 | RandomForest | 0.001405 | 0.000381 | 0.999975 | | 4.620527 |
| 3 | GradientBoosting | 0.098806 | 0.073898 | 0.876541 | | 0.135779 |
| 4 | XtremeGradientBoost | 0.002974 | 0.001132 | 0.999888 | | 0.315055 |
| 5 | NN | 0.002974 | 0.010834 | 0.996719 | | 37.922590 |
| 6 | DNN | 0.002974 | 0.097616 | 0.815780 | | 119.912516 |
| 7 | SVM Linear | 0.002974 | 0.068984 | 0.876548 | | 6.703090 |
| 8 | SVM RBF | 0.002974 | 0.053548 | 0.950900 | | 6.703090 |

▼ Vah05

▼ Cycle0

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.082678 | 0.056794 | 0.925354 | 0.000000 |
| 1 | DecisionTree | 0.010608 | 0.000372 | 0.998771 | | 0.021607 |
| 2 | RandomForest | 0.012076 | 0.000508 | 0.998407 | | 2.941729 |
| 3 | GradientBoosting | 0.075920 | 0.048816 | 0.937058 | | 0.100280 |
| 4 | XtremeGradientBoost | 0.009005 | 0.001006 | 0.999115 | | 0.213350 |
| 5 | NN | 0.009005 | 0.024727 | 0.991207 | | 25.697047 |
| 6 | DNN | 0.009005 | 0.014516 | 0.995981 | | 81.479157 |
| 7 | SVM Linear | 0.009005 | 0.062691 | 0.921833 | | 2.335155 |
| 8 | SVM RBF | 0.009005 | 0.054754 | 0.955920 | | 2.335155 |

▼ Cycle1

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|--------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.093052 | 0.065171 | 0.749182 | 0.002961 |
| 1 | DecisionTree | 0.075453 | 0.014681 | 0.835086 | | 0.000000 |
| 2 | RandomForest | 0.045258 | 0.014587 | 0.940668 | | 0.120395 |

| | | | | | |
|---|---------------------|----------|----------|----------|----------|
| 3 | GradientBoosting | 0.078650 | 0.055164 | 0.820815 | 0.015249 |
| 4 | XtremeGradientBoost | 0.036508 | 0.010456 | 0.961392 | 0.017395 |
| 5 | NN | 0.036508 | 0.068347 | 0.736958 | 0.787973 |
| 6 | DNN | 0.036508 | 0.027361 | 0.893788 | 1.630754 |
| 7 | SVM Linear | 0.036508 | 0.083434 | 0.671068 | 0.003400 |
| 8 | SVM RBF | 0.036508 | 0.073463 | 0.791289 | 0.003400 |

▼ Cycle2

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.092070 | 0.063428 | 0.755138 | 0.000000 |
| 1 | DecisionTree | 0.075510 | 0.014825 | 0.835299 | | 0.000000 |
| 2 | RandomForest | 0.044237 | 0.013062 | 0.943472 | | 0.120718 |
| 3 | GradientBoosting | 0.074634 | 0.053853 | 0.839097 | | 0.024028 |
| 4 | XtremeGradientBoost | 0.033697 | 0.008687 | 0.967200 | | 0.016165 |
| 5 | NN | 0.033697 | 0.063451 | 0.761222 | | 0.830194 |
| 6 | DNN | 0.033697 | 0.037708 | 0.924000 | | 1.615345 |
| 7 | SVM Linear | 0.033697 | 0.084934 | 0.688003 | | 0.000000 |
| 8 | SVM RBF | 0.033697 | 0.065191 | 0.850615 | | 0.000000 |

▼ Cycle3

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.092120 | 0.063785 | 0.754851 | 0.000000 |
| 1 | DecisionTree | 0.070274 | 0.012217 | 0.857339 | | 0.000000 |
| 2 | RandomForest | 0.045939 | 0.011808 | 0.939036 | | 0.116097 |
| 3 | GradientBoosting | 0.074317 | 0.054197 | 0.840452 | | 0.018010 |
| 4 | XtremeGradientBoost | 0.023681 | 0.006524 | 0.983799 | | 0.015372 |
| 5 | NN | 0.023681 | 0.063298 | 0.757764 | | 0.978727 |
| 6 | DNN | 0.023681 | 0.030869 | 0.937681 | | 1.605074 |
| 7 | SVM Linear | 0.023681 | 0.085197 | 0.687602 | | 0.000000 |
| 8 | SVM RBF | 0.023681 | 0.065581 | 0.850111 | | 0.000000 |

▼ Cycle4

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.093913 | 0.065472 | 0.747557 | 0.000000 |
| 1 | DecisionTree | 0.080544 | 0.016937 | 0.814315 | | 0.000000 |
| 2 | RandomForest | 0.045634 | 0.015470 | 0.940394 | | 0.116064 |
| 3 | GradientBoosting | 0.081594 | 0.056606 | 0.809440 | | 0.020849 |
| 4 | XtremeGradientBoost | 0.032182 | 0.009995 | 0.970356 | | 0.023964 |
| 5 | NN | 0.032182 | 0.068991 | 0.729770 | | 0.783193 |
| 6 | DNN | 0.032182 | 0.035836 | 0.860953 | | 1.675693 |
| 7 | SVM Linear | 0.032182 | 0.083197 | 0.680864 | | 0.000000 |
| 8 | SVM RBF | 0.032182 | 0.071659 | 0.811972 | | 0.000000 |

▼ All Cycles

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.092156 | 0.062538 | 0.909212 | 0.000000 |
| 1 | DecisionTree | 0.001171 | 0.000204 | 0.999985 | | 0.026834 |
| 2 | RandomForest | 0.004402 | 0.000275 | 0.999793 | | 3.024349 |
| 3 | GradientBoosting | 0.081326 | 0.052890 | 0.929297 | | 0.116684 |
| 4 | XtremeGradientBoost | 0.002114 | 0.000807 | 0.999952 | | 0.246939 |
| 5 | NN | 0.002114 | 0.011207 | 0.997141 | | 26.557190 |
| 6 | DNN | 0.002114 | 0.017267 | 0.987752 | | 82.539740 |
| 7 | SVM Linear | 0.002114 | 0.066299 | 0.907309 | | 2.387507 |
| 8 | SVM RBF | 0.002114 | 0.053666 | 0.956629 | | 2.387507 |

▼ Vah07

▼ Cycle0

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.089831 | 0.057858 | 0.911607 | 0.000000 |
| 1 | DecisionTree | 0.000927 | 0.000206 | 0.999991 | | 0.031269 |
| 2 | RandomForest | 0.008157 | 0.000393 | 0.999271 | | 3.011427 |
| 3 | GradientBoosting | 0.078809 | 0.051535 | 0.931968 | | 0.100722 |
| 4 | XtremeGradientBoost | 0.006292 | 0.000861 | 0.999566 | | 0.230173 |
| 5 | NN | 0.006292 | 0.012645 | 0.996491 | | 25.157678 |
| 6 | DNN | 0.006292 | 0.018210 | 0.981239 | | 84.216254 |
| 7 | SVM Linear | 0.006292 | 0.063426 | 0.911065 | | 2.318274 |
| 8 | SVM RBF | 0.006292 | 0.054722 | 0.956425 | | 2.318274 |

▼ Cycle1

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.122503 | 0.087810 | 0.700784 | 0.003377 |
| 1 | DecisionTree | 0.025561 | 0.005971 | 0.986973 | | 0.000000 |
| 2 | RandomForest | 0.026721 | 0.008358 | 0.985764 | | 0.120853 |
| 3 | GradientBoosting | 0.067282 | 0.050650 | 0.909742 | | 0.019934 |
| 4 | XtremeGradientBoost | 0.019775 | 0.006586 | 0.992203 | | 0.005644 |
| 5 | NN | 0.019775 | 0.066608 | 0.804983 | | 0.964652 |
| 6 | DNN | 0.019775 | 0.018079 | 0.985113 | | 1.722305 |
| 7 | SVM Linear | 0.019775 | 0.101248 | 0.665056 | | 0.000000 |
| 8 | SVM RBF | 0.019775 | 0.069036 | 0.882026 | | 0.000000 |

▼ Cycle2

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|--------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.124226 | 0.087962 | 0.694572 | 0.000000 |
| 1 | DecisionTree | 0.014735 | 0.005083 | 0.995703 | | 0.000000 |
| 2 | RandomForest | 0.015302 | 0.005064 | 0.995365 | | 0.111876 |

| | | | | | |
|---|---------------------|----------|----------|----------|----------|
| 3 | GradientBoosting | 0.062480 | 0.050047 | 0.922738 | 0.015708 |
| 4 | XtremeGradientBoost | 0.020580 | 0.006610 | 0.991618 | 0.019917 |
| 5 | NN | 0.020580 | 0.063180 | 0.802900 | 0.760124 |
| 6 | DNN | 0.020580 | 0.020913 | 0.979233 | 1.719612 |
| 7 | SVM Linear | 0.020580 | 0.098231 | 0.673577 | 0.000000 |
| 8 | SVM RBF | 0.020580 | 0.071464 | 0.876981 | 0.000000 |

▼ Cycle3

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.119103 | 0.083864 | 0.705377 | 0.000000 |
| 1 | DecisionTree | 0.041900 | 0.010207 | 0.963538 | | 0.000000 |
| 2 | RandomForest | 0.033278 | 0.009233 | 0.976999 | | 0.112117 |
| 3 | GradientBoosting | 0.067024 | 0.051279 | 0.906699 | | 0.016592 |
| 4 | XtremeGradientBoost | 0.025808 | 0.008629 | 0.986166 | | 0.018712 |
| 5 | NN | 0.025808 | 0.069798 | 0.769650 | | 0.770977 |
| 6 | DNN | 0.025808 | 0.008903 | 0.991937 | | 1.781689 |
| 7 | SVM Linear | 0.025808 | 0.096507 | 0.670255 | | 0.000000 |
| 8 | SVM RBF | 0.025808 | 0.069379 | 0.879621 | | 0.000000 |

▼ Cycle4

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.124880 | 0.089347 | 0.687419 | 0.000000 |
| 1 | DecisionTree | 0.039038 | 0.010226 | 0.969454 | | 0.000000 |
| 2 | RandomForest | 0.036390 | 0.010266 | 0.973457 | | 0.112406 |
| 3 | GradientBoosting | 0.066340 | 0.050686 | 0.911787 | | 0.025996 |
| 4 | XtremeGradientBoost | 0.021609 | 0.006770 | 0.990640 | | 0.020411 |
| 5 | NN | 0.021609 | 0.066628 | 0.798344 | | 0.773440 |
| 6 | DNN | 0.021609 | 0.015999 | 0.981393 | | 1.964260 |
| 7 | SVM Linear | 0.021609 | 0.098613 | 0.671578 | | 0.000000 |
| 8 | SVM RBF | 0.021609 | 0.071526 | 0.876189 | | 0.000000 |

▼ All Cycle

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.099984 | 0.065354 | 0.893094 | 0.000000 |
| 1 | DecisionTree | 0.008892 | 0.000313 | 0.999154 | | 0.030899 |
| 2 | RandomForest | 0.010204 | 0.000422 | 0.998887 | | 3.335373 |
| 3 | GradientBoosting | 0.096440 | 0.066902 | 0.900539 | | 0.110477 |
| 4 | XtremeGradientBoost | 0.007409 | 0.000946 | 0.999413 | | 0.241138 |
| 5 | NN | 0.007409 | 0.013639 | 0.995330 | | 25.996879 |
| 6 | DNN | 0.007409 | 0.015133 | 0.994623 | | 83.443542 |
| 7 | SVM Linear | 0.007409 | 0.068550 | 0.891234 | | 2.810741 |
| 8 | SVM RBF | 0.007409 | 0.055471 | 0.956281 | | 2.810741 |

▼ Vah09

▼ Cycle0

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|-----------|
| 0 | | ols | 0.085715 | 0.059722 | 0.920172 | 0.005171 |
| 1 | DecisionTree | 0.013500 | 0.000607 | 0.998020 | | 0.033487 |
| 2 | RandomForest | 0.011206 | 0.000591 | 0.998636 | | 2.970688 |
| 3 | GradientBoosting | 0.075241 | 0.046654 | 0.938489 | | 0.099209 |
| 4 | XtremeGradientBoost | 0.008910 | 0.001062 | 0.999137 | | 0.180742 |
| 5 | NN | 0.008910 | 0.007361 | 0.997750 | | 24.815653 |
| 6 | DNN | 0.008910 | 0.001283 | 0.999834 | | 79.578368 |
| 7 | SVM Linear | 0.008910 | 0.064973 | 0.912548 | | 3.357885 |
| 8 | SVM RBF | 0.008910 | 0.054847 | 0.955757 | | 3.357885 |

▼ Cycle1

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.107041 | 0.074032 | 0.693051 | 0.000000 |
| 1 | DecisionTree | 0.085103 | 0.018775 | 0.805975 | | 0.000000 |
| 2 | RandomForest | 0.063745 | 0.017928 | 0.891143 | | 0.119432 |
| 3 | GradientBoosting | 0.085566 | 0.047398 | 0.803856 | | 0.017496 |
| 4 | XtremeGradientBoost | 0.052789 | 0.012965 | 0.925345 | | 0.019191 |
| 5 | NN | 0.052789 | 0.066796 | 0.740282 | | 0.762252 |
| 6 | DNN | 0.052789 | 0.044624 | 0.883875 | | 1.756771 |
| 7 | SVM Linear | 0.052789 | 0.091429 | 0.642391 | | 0.002621 |
| 8 | SVM RBF | 0.052789 | 0.075747 | 0.806418 | | 0.002621 |

▼ Cycle2

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.107059 | 0.073956 | 0.692994 | 0.004040 |
| 1 | DecisionTree | 0.083191 | 0.016887 | 0.814624 | | 0.003996 |
| 2 | RandomForest | 0.060926 | 0.015863 | 0.900571 | | 0.111036 |
| 3 | GradientBoosting | 0.087028 | 0.048739 | 0.797129 | | 0.016297 |
| 4 | XtremeGradientBoost | 0.052554 | 0.012808 | 0.926020 | | 0.015512 |
| 5 | NN | 0.052554 | 0.064692 | 0.745086 | | 0.776712 |
| 6 | DNN | 0.052554 | 0.062652 | 0.857459 | | 1.911432 |
| 7 | SVM Linear | 0.052554 | 0.091947 | 0.641615 | | 0.000000 |
| 8 | SVM RBF | 0.052554 | 0.076118 | 0.806290 | | 0.000000 |

▼ Cycle3

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|--------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.109091 | 0.078347 | 0.700779 | 0.000000 |
| 1 | DecisionTree | 0.083773 | 0.016943 | 0.823551 | | 0.000000 |

| | | | | | |
|---|---------------------|----------|----------|----------|----------|
| 2 | RandomForest | 0.062670 | 0.020668 | 0.901251 | 0.115012 |
| 3 | GradientBoosting | 0.088884 | 0.045712 | 0.801363 | 0.024126 |
| 4 | XtremeGradientBoost | 0.062010 | 0.015057 | 0.903319 | 0.018996 |
| 5 | NN | 0.062010 | 0.075579 | 0.716449 | 0.745289 |
| 6 | DNN | 0.062010 | 0.031628 | 0.933527 | 1.740198 |
| 7 | SVM Linear | 0.062010 | 0.090841 | 0.657053 | 0.000000 |
| 8 | SVM RBF | 0.062010 | 0.083192 | 0.782819 | 0.000000 |

▼ Cycle4

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|----------|----------|
| 0 | | ols | 0.107257 | 0.074348 | 0.691973 | 0.000000 |
| 1 | DecisionTree | 0.084884 | 0.018233 | 0.807073 | 0.000000 | 0.000000 |
| 2 | RandomForest | 0.058543 | 0.018058 | 0.908232 | 0.114679 | 0.114679 |
| 3 | GradientBoosting | 0.080560 | 0.047181 | 0.826227 | 0.014933 | 0.014933 |
| 4 | XtremeGradientBoost | 0.048796 | 0.011747 | 0.936247 | 0.022523 | 0.022523 |
| 5 | NN | 0.048796 | 0.068392 | 0.727019 | 0.760514 | 0.760514 |
| 6 | DNN | 0.048796 | 0.081098 | 0.759743 | 1.710433 | 1.710433 |
| 7 | SVM Linear | 0.048796 | 0.091236 | 0.642858 | 0.000000 | 0.000000 |
| 8 | SVM RBF | 0.048796 | 0.073294 | 0.816679 | 0.000000 | 0.000000 |

▼ All Cycle

| Algo | RMSE | MAE | R-Squared | ExecutionTime | | |
|------|---------------------|----------|-----------|---------------|-----------|-----------|
| 0 | | ols | 0.093262 | 0.063900 | 0.907802 | 0.000000 |
| 1 | DecisionTree | 0.013096 | 0.000419 | 0.998182 | 0.031332 | 0.031332 |
| 2 | RandomForest | 0.010306 | 0.000397 | 0.998874 | 3.050566 | 3.050566 |
| 3 | GradientBoosting | 0.081386 | 0.052884 | 0.929789 | 0.108907 | 0.108907 |
| 4 | XtremeGradientBoost | 0.009222 | 0.000871 | 0.999098 | 0.253155 | 0.253155 |
| 5 | NN | 0.009222 | 0.009676 | 0.997342 | 26.956469 | 26.956469 |
| 6 | DNN | 0.009222 | 0.004261 | 0.998841 | 85.334436 | 85.334436 |
| 7 | SVM Linear | 0.009222 | 0.067208 | 0.906228 | 2.549551 | 2.549551 |
| 8 | SVM RBF | 0.009222 | 0.054349 | 0.956425 | 2.549551 | 2.549551 |