| kNNR | Best | BEM | IEW | Caruana | RSWH | RSWHid | WCH | SCH |
|---|---|---|---|---|---|---|---|---|
| automobile | 27.27(6) | 21.45(4) | 21.30(3) | 21.21(2) | 23.90(5) | **19.88**(1) | 22.74 | 10.55 |
| fertility | 109.07(6) | 101.31(4) | 100.51(3) | **99.24**(1) | 99.78(2) | 102.26(5) | 96.75 | 64.73 |
| flow | 102.86(6) | 84.46(2) | 84.47(3) | 85.59(4) | 87.29(5) | **59.15**(1) | 80.75 | 62.41 |
| forest | 141.64(6) | 106.44(5) | 106.20(4) | 104.40(3) | **98.52**(1) | 99.68(2) | 102.86 | 93.19 |
| servo | 55.11(6) | 55.02(5) | 54.85(4) | 53.48(3) | 51.09(2) | **50.50**(1) | 45.65 | 38.28 |
| slump | 111.84(6) | 89.82(5) | 89.62(4) | 88.58(3) | 86.77(2) | **82.35**(1) | 85.79 | 61.18 |
| traffic | 39.66(5) | 33.76(4) | 33.64(3) | 33.31(2) | **32.15**(1) | 39.83(6) | 31.26 | 22.37 |
| wine_red | 110.39(6) | 81.05(2) | 81.30(3) | 82.56(5) | 81.38(4) | **65.27**(1) | 84.53 | 48.46 |
| wine_white | 96.76(6) | 80.21(4) | 80.10(3) | 81.00(5) | 80.07(2) | **66.40**(1) | 83.37 | 44.14 |
| Avg. Rank | (5.89) | (3.89) | (3.33) | (3.11) | (2.67) | (**2.11**) | - | - |
| Ridge | Best | BEM | IEW | Caruana | RSWH | RSWHid | WCH | SCH |
| automobile | 20.00(6) | 17.91(4) | 17.84(3) | 16.92(2) | 18.22(5) | **16.23**(1) | 17.86 | 9.73 |
| fertility | 104.17(6) | 103.18(4) | 103.17(3) | 102.67(2) | **95.22**(1) | 103.98(5) | 102.43 | 97.38 |
| flow | 66.89(6) | 66.62(5) | 66.61(4) | 66.07(3) | 65.42(2) | **57.15**(1) | 65.71 | 64.60 |
| forest | 99.44(4) | 99.57(5) | 99.57(6) | 99.38(3) | **98.36**(1) | 99.20(2) | 99.31 | 98.02 |
| servo | 62.27(3) | 62.34(5) | 62.34(4) | 62.44(6) | **61.05**(1) | 61.10(2) | 61.90 | 61.50 |
| slump | 87.71(6) | 87.23(5) | 87.23(4) | 86.97(3) | 85.62(2) | **79.15**(1) | 86.28 | 84.09 |
| traffic | 41.28(6) | 40.65(5) | 40.63(4) | 39.81(3) | 38.31(2) | **36.18**(1) | 39.61 | 38,42 |
| wine_red | 69.12(6) | 65.55(5) | 65.52(4) | 64.87(2) | **64.82**(1) | 64.90(3) | 64.83 | 54.53 |
| wine_white | 78.12(6) | 73.82(5) | 73.77(4) | 72.98(3) | 72.93(2) | **72.83**(1) | 72.92 | 62.92 |
| Avg. Rank | (5.44) | (4.78) | (4.00) | (3.00) | (**1.89**) | (**1.89**) | - | - |
| Lasso | Best | BEM | IEW | Caruana | RSWH | RSWHid | WCH | SCH |
| automobile | 18.45(2) | 18.49(3) | 18.49(4) | 18.54(5) | 19.39(6) | **16.44**(1) | 18.40 | 18.24 |
| fertility | 92.95(3) | **92.77**(1) | 92.78(2) | 92.95(3) | 93.07(5) | 96.93(6) | 92.48 | 90.07 |
| flow | 66.66(6) | 65.99(5) | 65.99(4) | 65.66(3) | 64.99(2) | **57.16**(1) | 65.21 | 64.12 |
| forest | 99.65(6) | 99.58(4) | 99.58(5) | 99.54(3) | **98.27**(1) | 99.33(2) | 99.45 | 99.09 |
| servo | 102.02(6) | 75.89(5) | 73.02(4) | 64.29(3) | 59.63(2) | **56.87**(1) | 60.14 | 52.34 |
| slump | 86.85(6) | 86.43(5) | 86.43(4) | 86.02(3) | 84.90(2) | **79.17**(1) | 85.75 | 83.52 |
| traffic | 40.24(5) | 36.86(4) | 36.80(3) | 35.72(2) | **34.86**(1) | 43.84(6) | 35.05 | 31.64 |
| wine_red | 96.71(6) | 89.09(5) | 88.21(4) | 83.54(3) | 75.67(2) | **65.63**(1) | 78.50 | 68.64 |
| wine_white | 95.58(6) | 88.34(5) | 87.83(4) | 84.48(3) | 81.56(2) | **73.74**(1) | 82.62 | 72.14 |
| Avg. Rank | (5.17) | (4.11) | (3.78) | (3.17) | (2.56) | (**2.22**) | - | - |
| SVR | Best | BEM | IEW | Caruana | RSWH | RSWHid | WCH | SCH |
| automobile | 114.30(6) | 112.36(5) | 107.23(4) | 91.12(3) | 76.54(2) | **16.10**(1) | 83.74 | 82.48 |
| fertility | 184.62(6) | 110.73(5) | 104.17(4) | **94.79**(1) | 101.98(3) | 101.94(2) | 88.94 | 52.49 |
| flow | 106.54(6) | 103.90(5) | 103.80(4) | 97.96(3) | 91.07(2) | **58.82**(1) | 92.25 | 75.72 |
| forest | 101.04(6) | 99.98(5) | 99.95(4) | **98.07**(1) | 98.38(2) | 99.69(3) | 97.60 | 95.49 |
| servo | 117.03(6) | 72.74(5) | 57.21(4) | 25.58(3) | **23.37**(1) | 24.23(2) | 21.51 | 16.47 |
| slump | 116.65(6) | 110.74(5) | 110.34(4) | 100.51(3) | 95.55(2) | **78.91**(1) | 98.18 | 75.27 |
| traffic | 89.38(6) | 70.80(5) | 66.98(4) | 51.34(3) | 50.80(2) | **41.93**(1) | 47.88 | 24.81 |
| wine_red | 123.91(6) | 81.37(5) | 79.89(4) | 71.25(3) | 71.02(2) | **60.34**(1) | 73.97 | 32,04 |
| wine_white | 99.63(6) | 75.29(5) | 74.84(4) | 69.32(2) | 70.17(3) | **61.62**(1) | 71,50 | 38.45 |
| Avg. Rank | (6.00) | (5.00) | (4.00) | (2.44) | (2.11) | (**1.44**) | - | - |

Table 9: The 3-fold cross validation relative mean squared error and Friedman ranks for all datasets when the best hyperparameter configuration trial (Best), simple average (BEM), the inverse of the error (IEW), Caruana method (Caruana) and non-hyperparametric stacking stepwise regression over residual with the heuristic to provide zero weights to some models adding instance description to the ensemble (RSWHid) or not (RSWH), all taking into account several baseline systems (kNNR, Ridge, Lasso and SVR) and the PSO sampling strategy. The scores for the cheating approaches WCH and SCH are also shown, but they were not included in the computation of the Friedman ranks.