Appendix A

Table 1: Average and standard deviation of **F1-score** per dataset for the best configuration of the **Bagging** algorithm and resampling strategies.

	None	SMT	RO	RU	GN	SG	WERCS
Dataset				F1-score			
abalone	0.653(0.158)	0.693(0.040)	0.689(0.036)	0.692(0.042)	0.694(0.036)	0.635(0.054)	**0.700(0.032)**
a3	0.205(0.207)	**0.412(0.225)**	0.370(0.178)	0.296(0.202)	0.377(0.236)	0.387(0.197)	0.400(0.224)
a6	0.196(0.254)	0.325(0.240)	0.346(0.250)	0.355(0.238)	0.377(0.261)	**0.386(0.262)**	0.356(0.246)
a4	0.250(0.270)	0.373(0.246)	0.326(0.231)	0.337(0.227)	0.384(0.262)	0.302(0.267)	**0.385(0.239)**
a1	0.361(0.348)	0.418(0.359)	0.422(0.334)	0.358(0.345)	**0.439(0.344)**	0.431(0.335)	0.423(0.339)
a7	0.305(0.166)	0.341(0.092)	0.349(0.128)	0.333(0.145)	0.384(0.083)	**0.389(0.080)**	0.359(0.098)
boston	0.847(0.048)	0.862(0.059)	0.877(0.052)	0.826(0.060)	0.869(0.048)	0.839(0.071)	**0.887(0.044)**
a2	0.175(0.208)	0.376(0.241)	0.422(0.227)	0.309(0.206)	**0.427(0.220)**	0.414(0.208)	0.357(0.246)
a5	0.123(0.198)	0.335(0.252)	0.298(0.282)	0.274(0.253)	0.323(0.238)	**0.340(0.252)**	0.278(0.213)
fuelCons	0.763(0.268)	0.896(0.045)	**0.931(0.037)**	0.822(0.200)	0.911(0.043)	0.869(0.048)	0.894(0.048)
heat	0.925(0.013)	**0.975(0.003)**	**0.975(0.004)**	0.923(0.015)	0.971(0.004)	0.959(0.006)	0.951(0.008)
availPwr	0.909(0.019)	0.943(0.016)	**0.969(0.021)**	0.885(0.037)	0.954(0.019)	0.806(0.041)	0.934(0.017)
cpuSm	0.747(0.065)	0.740(0.078)	0.735(0.074)	0.737(0.069)	0.706(0.060)	0.712(0.106)	**0.750(0.072)**
maxTorq	0.930(0.029)	0.960(0.019)	**0.980(0.018)**	0.916(0.029)	0.966(0.020)	0.830(0.034)	0.952(0.016)
ConcrStr	0.046(0.204)	0.234(0.376)	**0.313(0.442)**	0.155(0.275)	0.262(0.411)	0.297(0.417)	0.230(0.408)
Accel	0.798(0.280)	0.885(0.210)	**0.892(0.218)**	0.792(0.277)	0.845(0.217)	0.819(0.202)	0.858(0.211)
airfoild	0.000(0.000)	0.099(0.221)	0.095(0.205)	0.049(0.129)	**0.116(0.221)**	0.053(0.151)	0.026(0.072)

Table 2: Average and standard deviation of **SERA** per dataset for the best configuration of the **Bagging** algorithm and resampling strategies.

	None	SMT	RO	RU	GN	SG	WERCS
Dataset				SERA			
abalone	1.23e+03	960.900	1.03e+03	973.136	966.647	1.28e+03	**955.671**
	(254.634)	(189.698)	(222.145)	(207.225)	(201.08)	(237.077)	**(198.049)**
a3	604.994	391.062	488.741	422.243	416.673	417.165	**372.448**
	(465.452)	(443.745)	(484.814)	(299.197)	(404.141)	(409.191)	**(285.986)**
a6	1.70e+03	1.34e+03	1.41e+03	1.41e+03	**1.33e+03**	**1.33e+03**	1.40e+03
	(1.82e+03)	(1.16e+03)	(1.38e+03)	(1.58e+03)	**(1.13e+03)**	**(1.20e+03)**	(1.50e+03)
a4	286.356	268.527	260.065	268.814	253.173	287.797	**236.941**
	(519.567)	(478.017)	(480.31)	(501.421)	(435.564)	(477.917)	**(466.600)**
a1	1.77e+03	1.43e+03	1.55e+03	**1.29e+03**	1.32e+03	1.41e+03	1.46e+03
	(1.95e+03)	(1.53e+03)	(1.74e+03)	**(1.32e+03)**	(1.25e+03)	(1.41e+03)	(1.52e+03)
a7	442.429	314.428	**285.159**	339.72	332.699	287.476	328.227
	(324.675)	(193.863)	**(218.205)**	(232.404)	(224.698)	(175.248)	(159.693)
boston	319.298	300.397	220.919	456.217	247.482	336.000	**208.871**
	(138.978)	(238.392)	(78.245)	(322.482)	(126.54)	(170.927)	**(93.984)**
a2	1.36e+03	1.12e+03	1.12e+03	**878.045**	913.228	1.04e+03	1.10e+03
	(1.63e+03)	(931.740)	(1.13e+03)	**(1.16e+03)**	(969.535)	(1.02e+03)	(1.53e+03)
a5	630.873	515.659	541.809	**426.164**	466.452	534.395	527.405
	(710.174)	(557.673)	(564.664)	**(468.996)**	(627.069)	(596.215)	(599.402)
fuelCons	37.860	32.871	**20.825**	45.035	27.435	43.552	24.166
	(25.818)	(16.530)	**(12.419)**	(20.799)	(16.01)	(21.755)	(14.241)
heat	1.53e+04	9.49e+03	**5.78e+03**	2.40e+04	9.06e+03	1.20e+04	7.75e+03
	(3.39e+03)	(1.22e+03)	**(1.01e+03)**	(4.38e+03)	(1.20e+03)	(2.32e+03)	(1.39e+03)
availPwr	1.48e+04	9.55e+03	**6.93+e06**	2.37e+04	7.59e+03	4.90e+04	9.24e+03
	(5.89e+03)	(6.48e+03)	**(6.07e+03)**	(7.67e+04)	(5.81e+03)	(1.20e+04)	(4.74e+03)
cpuSm	2.79e+03	2.73e+03	2.78e+03	3.07e+03	2.59e+03	3.69e+03	2.37e+03
	(565.933)	(622.733)	(646.225)	(736.903)	(356.382)	(1.16e+03)	(7.17e+03)
maxTorq	3.82e+04	1.97e+04	**1.20e+04**	8.75e+04	1.84e+04	1.73e+05	1.73e+04
	(2.82e+04)	(1.40e+04)	**(8.82e+03)**	(3.06e+04)	(1.80e+04)	(5.47e+04)	(1.29e+04)
ConcrStr	503.600	574.185	482.38	793.441	394.400	649.78	**371.319**
	(862.133)	(932.322)	(861.532)	(1.21e+04)	(580.965)	(982.706)	**(610.304)**
Accel	66.702	51.864	50.881	100.196	**49.756**	100.819	52.120
	(47.141)	(27.945)	(47.695)	(69.729)	**(26.134)**	(77.382)	(40.436)
airfoild	82.539	90.232	53.913	151.799	61.751	62.110	**52.489**
	(147.971)	(168.337)	(97.559)	(275.502)	(113.948)	(110.338)	**(94.199)**

Table 3: Average and standard deviation of **F1-score** per dataset for the best configuration of the **Decision Tree** and resampling strategies.

	None	SMT	RO	RU	GN	SG	WERCS
Dataset				F1-score			
abalone	**0.645(0.050)**	0.620(0.042)	0.620(0.034)	0.637(0.038)	0.630(0.046)	0.540(0.048)	0.628(0.033)
a3	0.338(0.179)	0.388(0.175)	0.317(0.152)	0.352(0.169)	0.368(0.178)	0.357(0.141)	**0.389(0.196)**
a6	0.330(0.238)	**0.349(0.202)**	0.261(0.212)	0.326(0.235)	**0.349(0.232)**	**0.349(0.221)**	0.322(0.225)
a4	0.309(0.248)	0.335(0.207)	0.336(0.237)	0.331(0.231)	0.348(0.213)	**0.370(0.225)**	0.355(0.227)
a1	**0.400(0.325)**	0.394(0.303)	0.379(0.318)	0.388(0.308)	0.376(0.301)	0.380(0.305)	0.370(0.302)
a7	0.275(0.088)	0.320(0.099)	0.306(0.118)	0.347(0.110)	0.350(0.142)	0.304(0.086)	**0.354(0.113)**
boston	0.839(0.059)	0.867(0.052)	**0.887(0.050)**	0.840(0.074)	0.871(0.059)	0.827(0.057)	0.878(0.052)
a2	0.276(0.213)	0.369(0.179)	0.306(0.251)	**0.392(0.217)**	0.377(0.211)	0.378(0.245)	0.381(0.218)
a5	0.203(0.219)	0.287(0.219)	0.313(0.226)	0.310(0.235)	0.319(0.214)	**0.341(0.231)**	0.303(0.195)
fuelCons	0.859(0.069)	0.851(0.052)	**0.912(0.062)**	0.806(0.057)	0.879(0.058)	0.842(0.055)	0.868(0.052)
heat	0.926(0.011)	**0.976(0.006)**	0.969(0.004)	0.922(0.009)	0.969(0.004)	0.922(0.087)	0.953(0.005)
availPwr	0.925(0.023)	0.958(0.015)	**0.972(0.019)**	0.918(0.036)	0.965(0.017)	0.799(0.044)	0.947(0.015)
cpuSm	**0.717(0.072)**	0.706(0.072)	0.703(0.082)	0.696(0.079)	0.631(0.068)	0.698(0.081)	0.714(0.074)
maxTorq	0.937(0.024)	0.966(0.016)	**0.984(0.015)**	0.927(0.029)	0.971(0.018)	0.826(0.048)	0.962(0.017)
ConcrStr	0.224(0.398)	0.270(0.426)	0.316(0.444)	0.258(0.405)	**0.321(0.451)**	0.249(0.394)	0.264(0.416)
Accel	0.786(0.275)	**0.891(0.211)**	0.890(0.215)	0.785(0.202)	0.886(0.212)	0.793(0.191)	0.861(0.208)
airfoild	0.040(0.125)	0.079(0.168)	0.114(0.215)	0.078(0.193)	**0.131(0.237)**	0.065(0.145)	0.090(0.174)

Table 4: Média e desvio padrão de **SERA** por conjunto de dados para a melhor configuração do algoritmo **Decision Tree** and resampling strategies.

	None	SMT	RO	RU	GN	SG	WERCS
Dataset				SERA			
abalone	1.50e+03	1.44e+03	1.68e+03	1.38e+03	**1.37e+03**	2.18e+03	1.42e+03
	(292.824)	(301.67)	(280.295)	(286.707)	**(285.157)**	(366.058)	(243.911)
a3	684.363	608.391	804.23	647.006	**545.935**	632.869	610.761
	(572.303)	(490.709)	(618.152)	(393.112)	**(335.704)**	(506.999)	(359.616)
a6	2.19e+03	1.87e+03	2.05e+03	1.89e+03	**1.57e+03**	1.83e+03	1.60e+03
	(2.35e+03)	(1.54e+03)	(1.75e+03)	(1.63e+03)	**(1.50e+03)**	(1.74e+03)	(1.37e+03)
a4	293.561	310.248	301.774	338.739	297.332	**251.500**	263.201
	(536.649)	(490.536)	(528.641)	(496.112)	(525.018)	**(454.995)**	(503.74)
a1	2.22e+03	2.16e+03	2.61e+03	2.18e+03	2.09e+03	2.08e+03	**1.99e+03**
	(2.46e+03)	(1.97e+03)	(2.69e+03)	(2.35e+03)	(2.09e+03)	(1.95e+03)	**(2.04e+03)**
a7	378.889	520.718	451.331	350.077	**343.419**	457.041	348.909
	(230.006)	(407.793)	(247.708)	(220.265)	**(255.017)**	(347.653	(230.984)
boston	338.873	299.271	256.278	336.493	311.147	480.127	**251.670**
	(245.344)	(239.850)	(128.917)	(172.843)	(187.840)	(342.679)	**(106.280)**
a2	1.69e+03	1.52e+03	1.57e+03	1.73e+03	1.43e+03	**1.31e+03**	1.56e+03
	(1.88e+03)	(1.43.e+03)	(1.49e+03)	(2.21e+03)	(1.09e+03)	**(1.08e+03)**	(1.62+06)
a5	683.644	794.470	711.169	**599.081**	687.812	667.614	616.617
	(703.755)	(687.759)	(669.796)	**(557.538)**	(665.456)	(683.977)	(564.826)
fuelCons	39.971	50.056	**30.528**	57.902	37.089	59.072	36.597
	(30.748)	(27.019)	**(21.356)**	(26.752)	(19.569)	(38.648)	(22.495)
heat	1.74e+04	9.50e+03	**6.67e+03**	5.14e+04	1.02e+04	4.15e+04	7.97e+04
	(2.55e+03)	(1.41e+03)	**(1.06e+03)**	(4.85e+03)	(1,15e+03)	(5.93e+04)	(986.278)
availPwr	1.02e+04	8.41e+03	7.93e+03	**1.90e+03**	**6.19e+03**	5.53e+04	9.58e+03
	(4.88e+03)	(6.47e+03)	(8.12e+03)	**(9.68e+03)**	**(5.73e+03)**	(1.45e+04)	(6.49e+03)
cpuSm	**3.60e+03**	4.11e+03	4.45e+03	4.84e+03	3.83e+03	7.95e+03	3.62e+03
	(665.071)	(1.78e+03)	(1.70e+03)	(1.78e+03)	(479.564)	(3.50e+03)	(443.752)
maxTorq	2.82e+04	2.01e+04	**1.45e+04**	5.60e+04	2.01e+04	1.75e+05	1.80e+04
	(2.74e+04)	(1.39e+04)	**(1.99e+04)**	(2.68e+04)	(1.58e+04)	(5.46e+04)	(1.54e+04)
ConcrStr	690.301	515.366	497.331	1.09e+03	538.877	698.017	**392.135**
	(1.39e+03)	(750.032)	(807.141)	(1.70e+03)	(780.251)	(1.01e+03)	**(555.238)**
Accel	79.959	**51.609**	64.798	122.039	59.007	190.319	60.932
	(63.705)	**(19.266)**	(60.182)	(59.623)	(22.544)	(107.525)	(54.108)
airfoild	84.992	91.132	56.296	182.528	80.030	71.290	**55.865**
	(151.352)	(175.662)	(106.835)	(333.289)	(146.340)	(128.167)	**(109.443)**

Table 5: Average and standard deviation of **F1-score** per dataset for the best configuration of the **MLP** and resampling strategies.

	None	SMT	RO	RU	GN	SG	WERCS
Dataset				F1-score			
abalone	0.649(0.057)	0.705(0.045)	0.704(0.041)	0.688(0.042)	**0.718(0.038)**	0.652(0.053)	0.702(0.044)
a3	0.148(0.198)	0.283(0.229)	0.331(0.200)	0.316(0.191)	**0.379(0.224)**	0.246(0.236)	0.245(0.232)
a6	0.027(0.119)	0.186(0.198)	**0.325(0.220)**	0.188(0.217)	0.281(0.213)	0.255(0.278)	0.238(0.249)
a4	0.123(0.178)	0.101(0.167)	**0.279(0.224)**	0.147(0.162)	0.222(0.207)	0.245(0.239)	0.237(0.222)
a1	0.101(0.213)	0.354(0.308)	**0.435(0.347)**	0.295(0.244)	0.412(0.323)	0.326(0.345)	0.292(0.320)
a7	0.077(0.138)	0.217(0.176)	0.276(0.184)	0.181(0.688)	0.265(0.159)	**0.301(0.190)**	0.237(0.222)
boston	0.430(0.366)	0.747(0.196)	0.722(0.257)	0.461(0.358)	0.714(0.193)	0.737(0.190)	**0.759(0.137)**
a2	0.134(0.175)	0.287(0.292)	**0.353(0.244)**	0.209(0.178)	0.341(0.221)	0.274(0.250)	0.336(0.271)
a5	0.083(0.175)	0.193(0.221)	**0.308(0.225)**	0.231(0.245)	0.265(0.249)	0.272(0.274)	0.181(0.218)
fuelCons	0.262(0.292)	0.300(0.310)	0.431(0.326)	0.291(0.225)	**0.456(0.287)**	0.329(0.349)	0.334(0.371)
heat	0.574(0.394)	0.822(0.211)	0.716(0.369)	0.804(0.047)	**0.907(0.032)**	0.788(0.275)	0.835(0.202)
availPwr	0.651(0.336)	0.851(0.045)	**0.869(0.032)**	0.852(0.037)	0.829(0.075)	0.797(0.091)	0.793(0.192)
cpuSm	0.124(0.130)	0.135(0.079)	0.150(0.094)	0.213(0.112)	**0.277(0.175)**	0.151(0.104)	0.108(0.116)
maxTorq	0.653(0.388)	0.766(0.218)	**0.903(0.039)**	0.507(0.396)	0.815(0.202)	0.712(0.254)	0.780(0.268)
ConcrStr	0.213(0.381)	0.265(0.416)	0.258(0.405)	0.072(0.225)	**0.296(0.418)**	0.285(0.400)	0.247(0.390)
Accel	0.165(0.226)	0.369(0.270)	**0.539(0.339)**	0.194(0.184)	0.417(0.328)	0.397(0.352)	0.287(0.296)
airfoild	**0.040(0.082)**	0.028(0.069)	0.009(0.042)	0.024(0.074)	**0.040(0.084)**	0.016(0.043)	0.036(0.089)

Table 6: Média e desvio padrão de **SERA** por conjunto de dados para a melhor configuração do algoritmo **MLP** and resampling strategies.

	None	SMT	RO	RU	GN	SG	WERCS
Dataset				SERA			
abalone	1.22e+03	967.413	976.856	1.10e+03	**912.090**	1.33e+03	912.241
	(283.276)	(239.453)	(236.867)	(317.882)	**(186.059)**	(354.938)	(191.657)
a3	1.41e+03	1.42e+03	**493.796**	1.33e+03	698.360	735.956	734.245
	(1.64e+03)	(2.57e+03)	**(414.930)**	(938.030)	(600.576)	(734.358)	(770.887)
a6	6.68e+03	2.86e+04	2.27e+03	4.64e+03	4.60e+03	**1.98e+03**	4.56e+03
	(1.09e+04)	(8.12e+04)	(2.71e+03)	(6.48e+03)	(4.43e+03)	**(1.98e+03)**	(6.01e+03)
a4	614.649	1.91e+03	2.85e+03	2.26e+04	2.18e+03	**315.357**	1.75e+03
	(1.32e+03)	(5.21e+03)	(475.880)	(9.27e+04)	(4.36e+03)	**(558.920)**	(5.17e+03)
a1	6.11e+03	3.72e+03	**1.80e+03**	1.26e+04	1.85e+03	2.28e+03	3.16e+03
	(6.64e+03)	(5.18e+03)	**(1.98e+03)**	(3.14e+04)	(1.80e+03)	(2.42e+03)	(3.91e+03)
a7	1.41e+03	2.73e+03	**503.693**	4.95e+03	2.31e+03	632.332	551.751
	(3.26e+03)	(8.23e+03)	**(413.449)**	(1.13e+04)	(2.55e+03)	(1.13e+03)	(413.917)
boston	1.45e+03	1.03e+03	776.284	3.03e+03	**561.457**	596.267	594.117
	(2.20e+03)	(1.18e+03)	(1.01e+03)	(4.04e+03)	**(247.432)**	(239.327)	(233.765)
a2	3.81e+03	6.34e+03	1.44e+03	2.19e+04	3.09e+03	1.72e+03	**1.37e+03**
	(4.98e+03)	(1.77e+03)	(1.49e+03)	(5.72e+04)	(6.14e+03)	(1.80e+03)	**(1.69e+03)**
a5	1.91e+03	1.35e+03	**655.030**	9.03e+03	1.07e+03	980.757	1.14e+03
	(4.06e+03)	(1.72e+03)	**(591.849)**	(3.54e+04)	(1.63e+03)	(1.92e+03)	(2.20e+03)
fuelCons	1.63e+03	5.47e+03	**409.065**	1.99e+05	774.172	651.518	599.53
	(2.34e+03)	(1.51e+03)	**(343.151)**	(5.34e+05)	(824.676)	(967.314)	(1.04e+03)
heat	2.26e+05	6.37e+04	7.09e+04	1.22e+05	**3.63e+04**	8.00e+04	6.94e+04
	(2.53e+05)	(4.71e+04)	(6.39e+04)	(5.20e+04)	**(1.49e+04)**	(5.80e+04)	(7.20e+04)
availPwr	1.00e+05	4.64e+04	**3.24e+04**	3.90e+04	3.81e+04	7.93e+04	5.72e+04
	(1.15e+05)	(4.06e+04)	**(1.46e+04)**	(1.42e+04)	(1.93e+04)	(5.04e+04)	(7.38e+04)
cpuSm	1.52e+07	6.67e+06	1.38e+06	6.47e+06	4.65e+06	**4.39e+05**	9.73e+05
	(5.22e+07)	(2.49e+07)	(3.93e+06)	(1.28e+07)	(1.12e+07)	**(1.45e+06)**	(2.93e+06)
maxTorq	1.04e+06	1.14e+06	1.87e+06	1.61e+07	3.74e+05	**3.43e+05**	3.46e+05
	(1.75e+06)	(2.50e+06)	(6.22e+06)	(3.66e+07)	(8.62e+05)	**(2.37e+05)**	(3.38e+05)
ConcrStr	1.01e+03	614.451	595.556	1.41e+04	**464.252**	800.242	763.323
	(1.58e+03)	(950.145)	(846.392)	(3.82e+04)	**(698.011)**	(1.12e+03)	(1.20e+03)
Accel	5.43e+03	6.89e+03	**395.535**	3.98e+06	2.18e+03	553.260	1.02e+03
	(1.09e+04)	(2.43e+04)	**(306.121)**	(9.54e+06)	(5.26e+03)	(610.692)	(913.230)
airfoild	1.80e+04	3.57e+04	**272.148**	6.16e+04	5.70e+03	972.542	5.56e+03
	(5.66e+04)	(9.65e+04)	**(488.261)**	(1.62e+05)	(1.03e+04)	(3.33e+03)	(1.28e+04)

Table 7: Average and standard deviation of **F1-score** per dataset for the best configuration of the **Random Forest** and resampling strategies.

	None	SMT	RO	RU	GN	SG	WERCS
Dataset				F1-score			
abalone	0.675(0.048)	0.697(0.031)	0.686(0.048)	**0.701(0.038)**	0.695(0.035)	0.653(0.047)	0.698(0.035)
a3	0.302(0.264)	0.402(0.172)	0.356(0.249)	0.406(0.21)	0.383(0.19)	0.366(0.22)	**0.427(0.212)**
a6	0.309(0.324)	0.347(0.247)	0.384(0.257)	0.354(0.244)	0.352(0.258)	**0.392(0.218)**	0.377(0.226)
a4	0.298(0.291)	0.363(0.225)	0.306(0.294)	0.362(0.208)	**0.381(0.234)**	0.353(0.277)	0.368(0.235)
a1	0.390(0.348)	0.415(0.364)	0.425(0.341)	0.420(0.327)	**0.442(0.345)**	0.439(0.345)	0.434(0.347)
a7	0.307(0.146)	0.365(0.097)	0.340(0.137)	0.344(0.145)	**0.389(0.114)**	0.365(0.126)	0.379(0.09)
boston	0.864(0.05)	0.885(0.039)	0.880(0.032)	0.872(0.043)	**0.888(0.033)**	0.885(0.041)	0.877(0.038)
a2	0.217(0.263)	0.442(0.239)	0.331(0.265)	0.439(0.22)	**0.444(0.234)**	0.397(0.265)	0.370(0.285)
a5	0.146(0.235)	0.333(0.26)	0.287(0.259)	**0.373(0.261)**	0.349(0.247)	0.353(0.268)	0.253(0.257)
fuelCons	0.919(0.033)	0.929(0.036)	**0.942(0.028)**	0.916(0.039)	0.930(0.032)	0.916(0.027)	0.941(0.029)
heat	0.976(0.004)	**0.993(0.003)**	0.975(0.003)	0.975(0.004)	0.985(0.003)	0.980(0.013)	0.977(0.003)
availPwr	0.967(0.013)	0.972(0.013)	**0.980(0.015)**	0.962(0.013)	0.974(0.015)	0.816(0.047)	0.975(0.015)
cpuSm	0.753(0.074)	0.746(0.076)	0.749(0.075)	0.745(0.072)	0.743(0.064)	0.567(0.226)	**0.754(0.070)**
maxTorq	0.961(0.020)	0.971(0.022)	**0.975(0.022)**	0.959(0.023)	0.972(0.022)	0.879(0.027)	0.971(0.019)
ConcrStr	0.146(0.356)	0.232(0.414)	0.278(0.439)	0.2700(0.425)	**0.314(0.440)**	0.265(0.417)	0.242(0.431)
Accel	0.786(0.340)	**0.892(0.225)**	0.863(0.297)	0.833(0.287)	0.863(0.296)	0.888(0.211)	0.809(0.350)
airfoild	0.062(0.134)	0.104(0.199)	0.093(0.201)	0.082(0.173)	0.122(0.232)	0.082(0.175)	**0.130(0.242)**

Table 8: Média e desvio padrão de **SERA** por conjunto de dados para a melhor configuração do algoritmo **Random Forest** and resampling strategies.

	None	SMT	RO	RU	GN	SG	WERCS
Dataset				SERA			
abalone	1.17e+03 (242.208)	945.519 (196.564)	1.10e+03 (228.482)	**923.131 (202.271)**	970.217 (211.588)	1.19e+03 (201.977)	940.993 (207.879)
a3	570.813 (537.167)	423.881 (373.429)	530.553 (535.190)	434.068 (418.399)	**408.347 (327.747)**	444.836 (492.126)	409.651 (320.506)
a6	1.66e+03 (1.88e+03)	1.33e+03 (1.33e+03)	1.48e+03 (1.62e+03)	1.29e+03 (1.23e+03)	**1.25e+03 (1.05e+03)**	1.34e+03 (1.31e+03)	1.42e+03 (1.45e+03)
a4	288.193 (524.852)	277.299 (475.106)	286.981 (524.881)	254.611 (459.555)	246.634 (465.480)	278.119 (486.665)	**245.944 (451.326)**
a1	1.80e+03 (1.96e+03)	1.47e+03 (1.35e+03)	1.71e+03 (1.72e+03)	**1.33e+03 (1.20e+03)**	1.43e+03 (1.27e+03)	1.52e+03 (1.45e+03)	1.48e+03 (1.58e+03)
a7	385.721 (289.616)	317.978 (210.264)	328.289 (207.974)	319.884 (164.504)	301.135 (200.539)	303.092 (187.740)	**276.395 (173.230)**
boston	247.677 (151.815)	211.990 (137.443)	178.980 (77.374)	256.288 (173.395)	191.442 (95.708)	216.703 (142.496)	**176.900 (84.290)**
a2	1.27e+03 (1.58e+03)	979.231 (889.098)	1.18e+03 (1.42e+03)	986.589 (1.26e+03)	948.166 (974.680)	**944.371 (1.12e+03)**	1.02e+03 (1.39e+03)
a5	541.375 (593.786)	482.186 (529.686)	548.899 (584.228)	**437.084 (422.165)**	443.107 (380.485)	489.692 (519.346)	501.064 (519.910)
fuelCons	16.303 (13.249)	16.998 (10.164)	13.599 (10.607)	22.803 (10.788)	16.982 (11.514)	19.375 (13.887)	**12.467 (9.375)**
heat	1.41e+03 (322.598)	**1.04e+03 (172.236)**	1.25e+03 (224.637)	4.18e+03 (551.203)	1.33e+03 (238.880)	2.55e+03 (2.70e+03)	1.17e+03 (246.250)
availPwr	4.75e+03 (5.11e+03)	4.99e+03 (5.74e+03)	**4.37e+03 (5.54e+03)**	8.16e+03 (5.68e+03)	4.85e+03 (5.58e+03)	4.93e+04 (1.52e+04)	4.41e+03 (5.06e+03)
cpuSm	2.43e+03 (468.372)	2.34e+03 (444.959)	2.34e+03 (394.574)	2.51e+03 (427.093)	2.14e+03 (276.052)	3.97e+03 (2.02e+03)	**2.07e+03 (402.488)**
maxTorq	1.39e+04 (16007.4)	1.51e+04 (1.68e+04)	1.19e+04 (1.65e+04)	3.57e+04 (2.20e+04)	1.30e+04 (1.70e+04)	9.88e+04 (4.12e+04)	**1.15e+04 (1.48e+04)**
ConcrStr	298.783 (576.845)	314.626 (528.594)	287.276 (580.861)	557.655 (893.581)	265.347 (415.969)	527.181 (776.094)	**263.909 (473.991)**
Accel	33.261 (25.273)	32.251 (17.450)	28.343 (21.392)	60.083 (30.907)	31.530 (18.837)	39.186 (30.724)	**26.534 (18.143)**
airfoild	22.226 (41.114)	31.344 (58.611)	22.067 (42.378)	98.370 (189.412)	25.612 (48.025)	23.503 (44.403)	**22.054 (41.784)**

Table 9: Average and standard deviation of **F1-score** per dataset for the best configuration of the **SVM** and resampling strategies.

	None	SMT	RO	RU	GN	SG	WERCS
Dataset				F1-score			
abalone	0.594(0.152)	0.705(0.034)	0.689(0.044)	0.698(0.036)	**0.707(0.036)**	0.648(0.053)	0.703(0.036)
a3	0.061(0.160)	0.369(0.200)	0.338(0.239)	0.343(0.178)	**0.384(0.182)**	0.325(0.189)	0.313(0.186)
a6	0.064(0.149)	0.288(0.220)	**0.316(0.267)**	0.283(0.238)	0.287(0.235)	0.282(0.221)	0.181(0.255)
a4	0.023(0.102)	0.325(0.201)	**0.332(0.288)**	0.322(0.217)	0.323(0.222)	0.319(0.257)	0.315(0.238)
a1	0.250(0.307)	0.402(0.320)	0.420(0.339)	0.412(0.326)	**0.425(0.337)**	0.372(0.304)	0.413(0.332)
a7	0.076(0.141)	0.342(0.137)	0.298(0.165)	**0.368(0.166)**	0.357(0.142)	0.365(0.123)	0.333(0.137)
boston	0.795(0.080)	0.778(0.087)	**0.883(0.038)**	0.737(0.084)	0.786(0.067)	0.773(0.089)	0.744(0.079)
a2	0.033(0.102)	0.337(0.221)	0.305(0.270)	0.316(0.210)	**0.386(0.195)**	0.294(0.244)	0.137(0.218)
a5	0.096(0.204)	0.324(0.260)	0.284(0.254)	0.303(0.250)	**0.336(0.252)**	0.239(0.240)	0.135(0.228)
fuelCons	0.227(0.359)	0.273(0.384)	**0.939(0.028)**	0.437(0.413)	0.244(0.349)	0.286(0.367)	0.231(0.364)
heat	0.995(0.002)	0.996(0.002)	0.976(0.003)	0.995(0.002)	0.987(0.004)	0.991(0.002)	**0.998(0.001)**
availPwr	0.968(0.022)	0.959(0.019)	**0.980(0.016)**	0.935(0.052)	0.940(0.036)	0.840(0.053)	0.969(0.022)
cpuSm	0.000(0.000)	0.101(0.095)	**0.750(0.073)**	0.101(0.095)	0.102(0.096)	0.150(0.069)	0.000(0.000)
maxTorq	0.946(0.042)	0.965(0.032)	**0.984(0.017)**	0.961(0.036)	0.973(0.026)	0.818(0.074)	0.949(0.046)
ConcrStr	0.174(0.357)	0.248(0.396)	0.242(0.43)	0.236(0.382)	**0.283(0.405)**	0.220(0.351)	0.206(0.372)
Accel	0.827(0.217)	0.288(0.220)	0.864(0.297)	0.789(0.346)	0.856(0.221)	0.828(0.208)	**0.878(0.217)**
airfoild	0.013(0.059)	0.045(0.097)	**0.088(0.196)**	0.047(0.113)	0.053(0.116)	0.040(0.109)	0.052(0.137)

Table 10: Média e desvio padrão de **SERA** por conjunto de dados para a melhor configuração do algoritmo **F1-score** and resampling strategies.

	None	SMT	RO	RU	GN	SG	WERCS
Dataset				SERA			
abalone	1.46e+03	**477.499**	1.10e+03	1.01e+03	984.990	1.19e+03	947.960
	(275.157)	**(234.225)**	(232.356)	(195.999)	(184.315)	(238.994)	(193.832)
a3	792.626	533.315	544.397	473.443	444.538	572.132	**431.893**
	(645.615)	(514.427)	(532.220)	(360.854)	(398.044)	(531.274)	**(360.302)**
a6	2.33e+03	1.76e+03	**1.55e+03**	1.64e+03	1.64e+03	1.75e+03	1.58e+03
	(2.49e+03)	(1.75e+03)	**(1.64e+03)**	(1.69e+03)	(1.49e+03)	(1.69e+03)	(1.69e+03)
a4	339.198	301.637	285.484	**254.053**	264.360	285.291	272.566
	(601.546)	(567.264)	(527.171)	**(476.806)**	(470.896)	(541.844)	(530.082)
a1	2.70e+03	2.48e+03	**1.72e+03**	1.95e+03	1.78e+03	2.48e+03	2.11e+03
	(2.90e+03)	(2.65e+03)	**(1.82e+03)**	(2.07e+03)	(1.59e+03)	(2.45e+03)	(2.34e+03)
a7	491.115	459.479	**324.526**	356.165	391.412	400.937	360.171
	(393.053)	(294.005)	**(208.745)**	(283.15)	(331.384)	(302.316)	(286.893)
boston	630.544	723.983	**194.352**	1.01e+03	666.869	764.593	832.000
	(298.667)	(341.838)	**(106.168)**	(541.469)	(355.382)	(384.121)	(320.318)
a2	1.73e+03	1.05e+03	1.19e+03	**898.407**	1.01e+03	1.11e+03	1.03e+03
	(1.79e+03)	(1.03e+03)	(1.47e+03)	**(1.05e+03)**	(1.17e+03)	(1.37e+03)	(1.37e+03)
a5	762.492	551.272	552.113	**406.172**	513.511	517.311	494.896
	(778.206)	(621.921)	(584.076)	**(421.032)**	(625.370)	(532.418)	(539.894)
fuelCons	202.132	151.233	**13.472**	102.621	174.266	149.788	171.779
	(80.439)	(80.909)	**(10.546)**	(125.598)	(85.856)	(85.461)	(78.968)
heat	169.120	1.50e+03	1.23e+03	3.54e+03	2.35e+03	1.21e+03	**73.582**
	(61.431)	(477.810)	(186.302)	(1.39e+03)	(623.598)	(284.613)	**(18.902)**
availPwr	2.69e+04	2.13e+04	4.44e+04	9.14e+04	**1.68e+04**	6.46e+04	2.59e+04
	(3.24e+04)	(2.60e+04)	(5.65e+04)	(2.27e+04)	**(1.47e+04)**	(3.64e+04)	(3.14e+04)
cpuSm	2.30e+05	1.33e+04	**2.34e+03**	1.33e+05	1.33e+05	1.31e+05	1.78e+04
	(4.19e+04)	(2.30e+04)	**(403.365)**	(2.30e+04)	(2.29e+04)	(2.13e+04)	(3.41e+04)
maxTorq	1.87e+05	8.58e+04	**7.33e+03**	1.25e+05	7.42e+04	2.73e+05	1.94e+05
	(1.85e+05)	(9.95e+04)	**(1.29e+04)**	(1.24e+05)	(6.44e+04)	(1.26e+05)	(1.87e+05)
ConcrStr	1.39e+03	960.561	**281.363**	693.177	522.772	1.63e+03	1.30e+03
	(2.17e+03)	(1.59e+03)	**(524.379)**	(1.12e+03)	(851.831)	(2.57e+03)	(2.05e+03)
Accel	146.105	109.926	**29.425**	153.644	115.67	125.294	118.602
	(171.57)	(155.355)	**(24.529)**	(209.149)	(200.843)	(160.16)	(143.483)
airfoild	275.138	228.456	**21.035**	199.553	196.875	186.258	255.656
	(493.57)	(402.385)	**(40.070)**	(361.833)	(339.064)	(330.021)	(458.556)

Table 11: Average and standard deviation of **F1-score** per dataset for the best configuration of the **XGBOOST** and resampling strategies.

	None	SMT	RO	RU	GN	SG	WERCS
Dataset				F1-score			
abalone	**0.676(0.051)**	0.405(0.241)	0.630(0.154)	0.675(0.047)	0.402(0.240)	0.452(0.270)	0.407(0.243)
a3	0.251(0.232)	0.302(0.232)	0.321(0.258)	**0.363(0.216)**	0.356(0.249)	0.234(0.206)	0.329(0.262)
a6	0.252(0.326)	0.223(0.261)	0.239(0.328)	**0.341(0.250)**	0.307(0.310)	0.222(0.284)	0.260(0.279)
a4	0.292(0.269)	0.292(0.248)	0.257(0.248)	**0.346(0.230)**	0.302(0.261)	0.142(0.210)	0.247(0.265)
a1	0.339(0.335)	0.181(0.261)	0.365(0.330)	**0.400(0.353)**	0.227(0.306)	0.190(0.284)	0.149(0.247)
a7	0.316(0.175)	0.336(0.166)	0.349(0.173)	0.324(0.134)	**0.380(0.153)**	0.301(0.146)	0.349(0.142)
boston	0.873(0.036)	0.118(0.245)	0.869(0.046)	**0.878(0.037)**	0.118(0.246)	0.271(0.312)	0.111(0.232)
a2	0.152(0.232)	0.318(0.254)	0.138(0.210)	0.405(0.225)	**0.407(0.246)**	0.163(0.210)	0.126(0.210)
a5	0.165(0.241)	0.229(0.263)	0.162(0.239)	**0.377(0.279)**	0.223(0.234)	0.146(0.219)	0.133(0.219)
fuelCons	0.947(0.024)	0.026(0.116)	**0.948(0.027)**	0.923(0.035)	0.025(0.111)	0.052(0.161)	0.025(0.113)
heat	**0.989(0.002)**	0.485(0.211)	0.987(0.002)	0.988(0.002)	0.541(0.139)	0.640(0.102)	0.389(0.234)
availPwr	**0.979(0.016)**	0.305(0.260)	0.977(0.017)	0.976(0.016)	0.367(0.249)	0.677(0.164)	0.352(0.243)
cpuSm	**0.742(0.061)**	0.334(0.024)	0.738(0.074)	0.705(0.074)	0.333(0.024)	0.308(0.035)	0.334(0.024)
maxTorq	**0.988(0.011)**	0.228(0.261)	0.985(0.016)	0.983(0.018)	0.294(0.275)	0.421(0.327)	0.212(0.243)
ConcrStr	0.283(0.445)	0.000(0.000)	**0.290(0.454)**	0.275(0.432)	0.000(0.000)	0.039(0.175)	0.000(0.000)
Accel	0.913(0.216)	0.027(0.119)	**0.914(0.216)**	0.886(0.215)	0.028(0.126)	0.060(0.185)	0.027(0.119)
airfoild	**0.152(0.282)**	0.000(0.000)	0.114(0.216)	0.112(0.208)	0.000(0.000)	0.000(0.000)	0.000(0.000)

Table 12: Average and standard deviation of **SERA** per dataset for the best configuration of the **XGBOOST** and resampling strategies.

	None	SMT	RO	RU	GN	SG	WERCS
Dataset				SERA			
abalone	1.25e+03	2.51e+03	1.37e+03	**1.01e+03**	2.73e+03	3.24e+03	3.63e+03
	(264.492)	(498.384)	(276.813)	**(231.676)**	(491.491)	(503.224)	(593.139)
a3	640.844	539.992	607.614	**417.328**	472.533	631.262	555.119
	(560.199)	(509.248)	(554.014)	**(335.543)**	(418.973)	(609.269)	(482.791)
a6	1.95e+03	1.60e+03	1.83e+03	1.50e+03	**1.42e+03**	1.79e+03	1.78e+03
	(2.21e+03)	(1.69e+03)	(2.04e+03)	(1.50e+03)	**(1.52e+03)**	(2.07e+03)	(1.88e+03)
a4	303.805	302.890	322.970	279.661	313.848	320.116	**307.040**
	(561.470)	(534.696)	(544.079)	(509.050)	(572.304)	(599.471)	**(565.255)**
a1	2.06e+03	2.31e+03	2.18e+03	**1.51e+03**	1.91e+03	2.65e+03	3.17e+03
	(2.02e+03)	(2.31e+03)	(2.14e+03)	**(1.64e+03)**	(1.92e+03)	(2.46e+03)	(3.11e+03)
a7	448.014	315.181	430.79	348.759	**301.221**	401.885	327.087
	(348.541)	(265.115)	(314.11)	(237.521)	**(237.802)**	(317.785)	(223.961)
boston	**214.415**	2.09e+03	235.856	217.502	2.03e+03	2.23e+03	2.39e+03
	(125.709)	(407.437)	(128.023)	(116.591)	(473.008)	(414.495)	(459.201)
a2	1.37e+03	1.08e+03	1.38e+03	**923.025**	1.05e+03	1.59e+03	1.51e+03
	(1.59e+03)	(1.28e+03)	(1.59e+03)	**(952.818)**	(1.17e+03)	(1.76e+03)	(1.69e+03)
a5	594.044	540.163	625.479	**507.557**	507.786	710.018	695.177
	(595.523)	(593.018)	(659.988)	**(486.587)**	(516.535)	(775.641)	(751.479)
fuelCons	**11.555**	362.077	11.739	20.86	310.902	367.169	402.371
	(9.548)	(105.116)	(9.229)	(8.586)	(81.294)	(73.656)	(85.618)
heat	**361.243**	1.92e+05	620.864	2.13e+03	1.90e+05	1.69e+05	2.31e+05
	(132.259)	(2.60e+04)	(152.357)	(368.457)	(2.76e+04)	(5.45e+04)	(3.08e+04)
availPwr	**4.49e+03**	1.80e+05	4.69e+03	6.91e+03	1.69e+05	1.25e+05	1.88e+05
	(4.76e+03)	(3.13e+04)	(5.40e+03)	(5.01e+03)	(3.20e+04)	(2.04e+04)	(3.08e+04)
cpuSm	**2.15e+03**	7.80e+04	2.23e+03	2.70e+03	7.40e+03	6.85e+04	7.42e+04
	(697.176)	(6.20e+03)	(654.284)	(661.755)	(5.86e+03)	(8.03e+03)	(5.81e+04)
maxTorq	4.52e+03	6.54e+05	5.33e+03	**1.78e+03**	6.21e+05	4.97e+05	7.08e+05
	(6.60e+03)	(1.61e+05)	(9.10e+03)	**(1.20e+04)**	(1.57e+05)	(1.13e+05)	(1.53e+05)
ConcrStr	276.817	2.68e+03	**234.928**	603.366	2.50e+03	3.36e+03	3.65e+03
	(558.400)	(4.02e+03)	**(452.243)**	(923.900)	(3.58e+03)	(4.78e+03)	(5.18e+03)
Accel	**25.071**	868.908	25.951	65.084	751.311	849.471	1.00e+03
	(18.289)	(336.388)	(15.210)	(38.416)	(286.512)	(315.547)	(366.939)
airfoild	**12.806**	1.03e+04	13.830	82.850	1.03e+04	1.02e+04	9.50e+04
	(23.181)	(1.82e+04)	(26.720)	(158.781)	(1.82e+04)	(1.80e+04)	(1.67e+04)