

Supplementary Material of the Paper
“SLIM: The Non-Bloating Genetic Programming
with Geometric Semantic Mutations and
Meaningful Semantic Crossover”
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Table 1: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE for Toxicity

	SLIM+SIG2	SLIM*SIG2	SLIM+ABS	SLIM*ABS	SLIM+SIG1	SLIM*SIG1
GP	0.000019	$< 10^7$	0.000013	0.000005	0.000013	0.000011
GSGP	0.033874	0.818746	0.039167	0.569220	0.043584	0.520145

Table 2: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE for Istanbul

	SLIM+SIG2	SLIM*SIG2	SLIM+ABS	SLIM*ABS	SLIM+SIG1	SLIM*SIG1
GP	$< 10^7$	$< 10^7$	$< 10^7$	$< 10^7$	$< 10^7$	$< 10^7$
GSGP	0.010763	0.958731	0.000014	0.016285	0.239850	0.706171

Table 3: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE for Energy

	SLIM+SIG2	SLIM*SIG2	SLIM+ABS	SLIM*ABS	SLIM+SIG1	SLIM*SIG1
GP	0.051877	0.059428	0.006097	0.022360	0.023243	0.036439
GSGP	0.000005	0.000028	$< 10^7$	0.000001	0.000004	$< 10^7$

Table 4: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE for PPB

	SLIM+SIG2	SLIM*SIG2	SLIM+ABS	SLIM*ABS	SLIM+SIG1	SLIM*SIG1
GP	$< 10^7$	0.065671	$< 10^7$	0.037782	$< 10^7$	0.015638
GSGP	0.059428	$< 10^7$	0.446419	$< 10^7$	0.105470	$< 10^7$

Table 5: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE for Concrete

	SLIM+SIG2	SLIM*SIG2	SLIM+ABS	SLIM*ABS	SLIM+SIG1	SLIM*SIG1
GP	0.085000	0.019883	0.283778	0.304177	0.830255	0.061452
GSGP	0.032651	$< 10^7$	0.016285	0.000034	0.001302	0.000002

Table 6: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE for RBSP

	SLIM+SIG2	SLIM*SIG2	SLIM+ABS	SLIM*ABS	SLIM+SIG1	SLIM*SIG1
GP	0.000002	0.018368	0.000002	0.029205	0.000003	0.000730
GSGP	0.016955	0.000111	0.011228	0.000021	0.074827	0.010763

Table 7: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE for Toxicity

	SLIMMER+SIG2	SLIMMER*SIG2	SLIMMER+ABS	SLIMMER*ABS	SLIMMER+SIG1	SLIMMER*SIG1
GP	0.000013	0.006377	0.000012	0.001174	0.000012	0.001302
GSGP	0.065671	0.000020	0.067869	0.004226	0.074827	0.000002

Table 8: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE for Istanbul

	SLIMMER+SIG2	SLIMMER*SIG2	SLIMMER+ABS	SLIMMER*ABS	SLIMMER+SIG1	SLIMMER*SIG1
GP	$< 10^7$	$< 10^7$	$< 10^7$	$< 10^7$	$< 10^7$	$< 10^7$
GSGP	0.015014	0.982307	0.000044	0.641424	0.082357	0.853382

Table 9: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE for Energy

	SLIMMER+SIG2	SLIMMER*SIG2	SLIMMER+ABS	SLIMMER*ABS	SLIMMER+SIG1	SLIMMER*SIG1
GP	0.190730	0.025101	0.061452	0.087710	0.057460	0.125970
GSGP	0.013832	$< 10^7$	0.000015	0.000168	0.000053	0.000213

Table 10: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE for PPB

	SLIMMER+SIG2	SLIMMER*SIG2	SLIMMER+ABS	SLIMMER*ABS	SLIMMER+SIG1	SLIMMER*SIG1
GP	$< 10^7$	0.157976	0.000001	0.005828	0.000002	0.003671
GSGP	0.007959	$< 10^7$	0.000213	$< 10^7$	0.020681	$< 10^7$

Table 11: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE for Concrete

	SLIMMER+SIG2	SLIMMER*SIG2	SLIMMER+ABS	SLIMMER*ABS	SLIMMER+SIG1	SLIMMER*SIG1
GP	0.162375	0.000471	0.717189	0.000952	0.379036	0.002499
GSGP	0.000012	$< 10^7$	0.000268	$< 10^7$	0.000092	$< 10^7$

Table 12: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE for RBSP

	SLIMMER+SIG2	SLIMMER*SIG2	SLIMMER+ABS	SLIMMER*ABS	SLIMMER+SIG1	SLIMMER*SIG1
GP	0.000026	0.006097	0.000081	0.620404	0.000077	0.016955
GSGP	0.501144	0.001442	0.277189	$< 10^7$	0.171450	0.000020

Table 13: Comparison of the RMSE on the Training set at termination for the versions of SLIM, SLIMMER and SLIM-R that have returned the best results

	RMSE on the Training Set				
	SLIM		SLIMMER		SLIM-R
Toxicity	2070.764160	$<$	2368.966309	$>$	2338.956177
Istanbul	0.013923	$>$	0.013482	$>$	0.013319
Energy	2.738796	$<$	2.764835	$>$	2.377620
PPB	13.662923	$>$	12.047603	$>$	9.046859
Concrete	6.518945	$<$	7.861273	$>$	7.284077
RBSP	41.359465	$<$	44.003084	$>$	34.358650

Table 14: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on the Toxicity dataset

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 15: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on the Toxicity dataset

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 16: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on the Toxicity dataset

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 17: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on the Concrete dataset

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 18: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on the Concrete dataset

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 19: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on the Concrete dataset

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 20: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on the Istanbul dataset

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 21: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on the Istanbul dataset

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 22: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on the Istanbul dataset

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 23: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on the PPB dataset

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 24: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on the PPB dataset

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 25: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on the PPB dataset

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 26: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on the RBSP dataset

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 27: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on the RBSP dataset

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 28: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on the RBSP dataset

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 29: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on the Energy dataset

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 30: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on the Energy dataset

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	0.710200
SLIM-R	–	–	–

Table 31: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on the Energy dataset

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 32: Comparison of the RMSE on the Training set at termination for all the SLIM, SLIMMER and SLIM-R versions

Dataset	Variant	RMSE on the TRaining Set				
		SLIM		SLIMMER		SLIM-R
Toxicity	*SIG2	2070.764000	>	1743.221000	>	1458.776000
	+SIG2	2385.959000	>	2370.903000	>	2346.603000
	*ABS	2106.266000	>	1816.818000	>	1551.948000
	+ABS	2382.071000	>	2369.802000	>	2338.956000
	*SIG1	2074.562000	>	1747.662000	>	1516.634000
	+SIG1	2380.886000	>	2368.966000	>	2339.806000
Istanbul	*SIG2	0.012000	<	0.012000	>	0.011000
	+SIG2	0.013000	>	0.013000	>	0.012000
	*ABS	0.014000	>	0.013000	>	0.013000
	*SIG1	0.012000	<	0.012000	>	0.011000
	+SIG1	0.013000	<	0.013000	>	0.012000
Energy	*SIG2	2.739000	=	2.813000	>	2.525000
	+SIG2	2.685000	>	2.725000	>	2.378000
	*ABS	2.879000	>	2.765000	>	2.624000
	+ABS	2.916000	>	2.738000	>	2.587000
	*SIG1	2.808000	>	2.715000	>	2.594000
	+SIG1	2.802000	>	2.746000	>	2.577000
PPB	*SIG2	28.741000	<	31.143000	>	23.399000
	+SIG2	19.866000	>	16.877000	>	9.047000
	*ABS	33.582000	>	33.763000	>	29.036000
	+ABS	15.045000	>	13.301000	>	7.358000
	*SIG1	32.442000	>	34.138000	>	28.168000
	+SIG1	13.663000	>	12.048000	>	6.411000
Concrete	*SIG2	10.031000	<	10.876000	>	8.875000
	+SIG2	6.519000	<	8.250000	>	7.277000
	*ABS	8.280000	<	14.077000	>	10.011000
	+ABS	7.229000	<	7.861000	>	7.284000
	*SIG1	8.879000	<	11.786000	>	8.726000
	+SIG1	7.299000	<	7.892000	>	7.035000
RBSP	*SIG2	41.359000	>	34.366000	>	28.909000
	+SIG2	100.999000	>	80.748000	>	74.124000
	*ABS	51.993000	>	44.003000	>	34.359000
	+ABS	100.162000	>	81.580000	>	70.362000
	*SIG1	58.707000	>	47.662000	>	34.756000
	+SIG1	93.980000	>	75.706000	>	64.555000

Table 33: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset Toxicity with variant SLIM*SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 34: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset Toxicity with variant SLIM*SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 35: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset Toxicity with variant SLIM*SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 36: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset Toxicity with variant SLIM+SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 37: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset Toxicity with variant SLIM+SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 38: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset Toxicity with variant SLIM+SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 39: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset Toxicity with variant SLIM*ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 40: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset Toxicity with variant SLIM*ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 41: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset Toxicity with variant SLIM*ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 42: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset Toxicity with variant SLIM+ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 43: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset Toxicity with variant SLIM+ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 44: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset Toxicity with variant SLIM+ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 45: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset Toxicity with variant SLIM*SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 46: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset Toxicity with variant SLIM*SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 47: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset Toxicity with variant SLIM*SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 48: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset Toxicity with variant SLIM+SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 49: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset Toxicity with variant SLIM+SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 50: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset Toxicity with variant SLIM+SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 51: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset Concrete with variant SLIM*SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 52: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset Concrete with variant SLIM*SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 53: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset Concrete with variant SLIM*SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 54: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset Concrete with variant SLIM+SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 55: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset Concrete with variant SLIM+SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 56: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset Concrete with variant SLIM+SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 57: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset Concrete with variant SLIM*ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 58: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset Concrete with variant SLIM*ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 59: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset Concrete with variant SLIM*ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 60: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset Concrete with variant SLIM+ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 61: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset Concrete with variant SLIM+ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 62: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset Concrete with variant SLIM+ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 63: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset Concrete with variant SLIM*SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 64: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset Concrete with variant SLIM*SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 65: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset Concrete with variant SLIM*SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 66: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset Concrete with variant SLIM+SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 67: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset Concrete with variant SLIM+SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 68: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset Concrete with variant SLIM+SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 69: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset Istanbul with variant SLIM*SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 70: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset Istanbul with variant SLIM*SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	0.018200	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 71: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset Istanbul with variant SLIM*SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 72: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset Istanbul with variant SLIM+SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 73: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset Istanbul with variant SLIM+SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	0.000500	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 74: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset Istanbul with variant SLIM+SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 75: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset Istanbul with variant SLIM*ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 76: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset Istanbul with variant SLIM*ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 77: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset Istanbul with variant SLIM*ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 78: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset Istanbul with variant SLIM+ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 79: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset Istanbul with variant SLIM+ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 80: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset Istanbul with variant SLIM+ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 81: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset Istanbul with variant SLIM*SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 82: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset Istanbul with variant SLIM*SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 83: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset Istanbul with variant SLIM*SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 84: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset Istanbul with variant SLIM+SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 85: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset Istanbul with variant SLIM+SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 86: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset Istanbul with variant SLIM+SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 87: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset PPB with variant SLIM*SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 88: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset PPB with variant SLIM*SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 89: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset PPB with variant SLIM*SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 90: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset PPB with variant SLIM+SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 91: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset PPB with variant SLIM+SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 92: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset PPB with variant SLIM+SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 93: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset PPB with variant SLIM*ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 94: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset PPB with variant SLIM*ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 95: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset PPB with variant SLIM*ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 96: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset PPB with variant SLIM+ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 97: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset PPB with variant SLIM+ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 98: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset PPB with variant SLIM+ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 99: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset PPB with variant SLIM*SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	0.003900	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 100: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset PPB with variant SLIM*SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 101: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset PPB with variant SLIM*SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 102: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset PPB with variant SLIM+SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 103: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset PPB with variant SLIM+SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 104: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset PPB with variant SLIM+SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 105: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset RBSP with variant SLIM*SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 106: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset RBSP with variant SLIM*SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 107: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset RBSP with variant SLIM*SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 108: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset RBSP with variant SLIM+SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 109: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset RBSP with variant SLIM+SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 110: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset RBSP with variant SLIM+SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 111: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset RBSP with variant SLIM*ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 112: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset RBSP with variant SLIM*ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 113: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset RBSP with variant SLIM*ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 114: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset RBSP with variant SLIM+ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 115: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset RBSP with variant SLIM+ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 116: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset RBSP with variant SLIM+ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 117: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset RBSP with variant SLIM*SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 118: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset RBSP with variant SLIM*SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 119: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset RBSP with variant SLIM*SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 120: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset RBSP with variant SLIM+SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 121: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset RBSP with variant SLIM+SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 122: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset RBSP with variant SLIM+SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 123: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset Energy with variant SLIM*SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	0.548400	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 124: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset Energy with variant SLIM*SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	0.035600	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 125: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset Energy with variant SLIM*SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 126: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset Energy with variant SLIM+SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 127: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset Energy with variant SLIM+SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 128: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset Energy with variant SLIM+SIG2

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 129: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset Energy with variant SLIM*ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 130: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset Energy with variant SLIM*ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 131: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset Energy with variant SLIM*ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 132: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset Energy with variant SLIM+ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 133: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset Energy with variant SLIM+ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 134: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset Energy with variant SLIM+ABS

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 135: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset Energy with variant SLIM*SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 136: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset Energy with variant SLIM*SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 137: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset Energy with variant SLIM*SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 138: p -values returned by the Wilcoxon signed-rank test when comparing the training RMSE on dataset Energy with variant SLIM+SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 139: p -values returned by the Wilcoxon signed-rank test when comparing the test RMSE on dataset Energy with variant SLIM+SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–

Table 140: p -values returned by the Wilcoxon signed-rank test when comparing the size of the best individual on dataset Energy with variant SLIM+SIG1

	SLIM	SLIMMER	SLIM-R
SLIM	–	$< 10^7$	$< 10^7$
SLIMMER	–	–	$< 10^7$
SLIM-R	–	–	–