

Analysis and Comparison of Feature Selection Methods Towards Performance and Stability

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Supplementary Material

Table 1: Selection accuracy Mean and Variance for tested Feature Selectors on XOR dataset

Feature Selector	Number of selected features	% of informative features selected		% of selected features that are informative	
DecisionTree	5	50.00		20.00	
	10	50.00		10.00	
	20	51.61	± 8.980	5.16	± 0.89
KW Filter	5	0.00		0.00	
	10	0.00		0.00	
	20	0.00		0.00	
Lasso	5	0.00		0.00	
	10	0.00		0.00	
	20	50.00		5.00	
LinearSVM	5	0.00		0.00	
	10	50.00		10.00	
	20	50.00		5.00	
MI Filter	5	4.83	± 15.02	1.93	± 6.01
	10	19.35	± 30.76	3.87	± 6.15
	20	37.09	± 34.07	3.70	± 3.40
MRMR	5	9.67	± 20.08	3.87	± 8.03
	10	14.51	± 23.07	02.90	± 4.61
	20	38.70	± 38.10	3.87	± 3.81
RandomForest	5	100.00		40.00	
	10	100.00		20.00	
	20	100.00		10.00	
ReliefF	5	100.00		40.00	
	10	100.00		20.00	
	20	100.00		10.00	
ReliefF-GA	5	67.74	± 24.31	27.09	± 9.72
	10	70.96	± 28.20	14.19	± 5.64
	20	93.54	± 17.03	9.35	± 1.70
SVM-GA	5	27.41	± 40.49	10.96	± 16.1
	10	33.87	± 41.60	6.77	± 8.32
	20	77.41	± 33.76	7.74	± 3.37
SVM-RFE	5	0.00		0.00	
	10	0.00		0.00	
	20	50.00		5.00	

Table 2: Selection accuracy Mean and Variance for tested Feature Selectors on Synth_A data

Feature Selector	Number of selected features	% of informative features selected		% of selected features that are informative	
DecisionTree	5	0.00		0.00	
	10	0.00		0.00	
	20	0.00		0.00	
	50	0.00		0.00	
	100	0.00		0.00	
KW Filter	5	4.00		40.00	
	10	4.00		20.00	
	20	8.00		20.00	
	50	10.00		10.00	
	100	14.00		7.00	
Lasso	5	0.00		0.00	
	10	0.00		0.00	
	20	2.00		5.00	
	50	4.00		4.00	
LinearSVM	5	2.00		20.00	
	10	4.00		20.00	
	20	4.00		10.00	
	50	4.00		4.00	
	100	4.00		2.00	
MI Filter	5	0.00		0.00	
	10	0.00		0.00	
	20	0.00		0.00	
	50	2.00		2.00	
MRMR	5	0.00		0.00	
	10	0.00		0.00	
	20	0.00		0.00	
	50	0.00		0.00	
RandomForest	5	2.00		1.00	
	10	0.45	± 0.99	4.51	± 9.94
	20	0.70	± 1.21	3.54	± 6.08
	50	1.35	± 1.80	3.38	± 4.54
ReliefF	5	2.70	± 1.96	2.70	± 1.96
	10	3.67	± 2.58	1.83	± 1.29
	5	6.00		60.00	
	10	6.00		30.00	
	20	8.00		20.00	
ReliefF-GA	50	10.00		10.00	
	100	10.00		5.00	
	5	1.80	± 1.19	18.06	± 11.9
	10	2.00	± 1.46	10.00	± 7.30
	20	2.51	± 1.93	6.29	± 4.82
SVM-GA	50	3.41	± 2.54	3.41	± 2.54
	100	3.93	± 3.03	1.96	± 1.51
	5	2.00	± 1.03	20.00	± 10.3
	10	3.22	± 1.90	16.12	± 9.54
	20	3.54	± 1.98	8.87	± 4.95
SVM-RFE	50	3.93	± 2.03	3.93	± 2.03
	100	4.06	± 2.55	2.03	± 1.27
	5	0.00		0.00	
	10	0.00		0.00	
	20	0.00		0.00	
SVM-RFE	50	4.00		4.00	
	100	4.00		2.00	

Table 3: Averaged prediction accuracy with standard deviation of the 31 executions of feature selection algorithms on XOR dataset for all the evaluated subset sizes.

Feature Selector	Num. of features	Accuracy			
		SVM	Decision Tree	Random Forest	Naïve Bayes
DecisionTree	5	0.51 ±0.02	0.50 ±0.02	0.50 ±0.02	0.49 ±0.03
	10	0.49 ±0.02	0.49 ±0.03	0.48 ±0.03	0.49 ±0.02
	20	0.49 ±0.08	0.50 ±0.06	0.50 ±0.07	0.48 ±0.01
KW Filter	5	0.55	0.54	0.55 ±0.01	0.55
	10	0.51	0.53 ±0.01	0.52 ±0.01	0.53
	20	0.53	0.49 ±0.01	0.50 ±0.02	0.54
Lasso	5	0.53	0.51	0.51 ±0.01	0.57
	10	0.54	0.49 ±0.01	0.48 ±0.01	0.56
	20	0.50	0.52 ±0.01	0.51 ±0.01	0.51
LinearSVM	5	0.51	0.51	0.52 ±0.01	0.54
	10	0.53	0.52 ±0.01	0.53 ±0.01	0.56
	20	0.48	0.50 ±0.01	0.49 ±0.02	0.52
MI Filter	5	0.49 ±0.03	0.49 ±0.03	0.49 ±0.03	0.49 ±0.03
	10	0.54 ±0.13	0.52 ±0.11	0.53 ±0.13	0.49 ±0.02
	20	0.56 ±0.15	0.52 ±0.07	0.56 ±0.13	0.49 ±0.02
MRMR	5	0.50 ±0.03	0.50 ±0.02	0.50 ±0.03	0.50 ±0.03
	10	0.50 ±0.02	0.50 ±0.03	0.49 ±0.02	0.49 ±0.02
	20	0.58 ±0.18	0.53 ±0.06	0.57 ±0.16	0.49 ±0.02
RandomForest	5	1.00	1.00	1.00	0.51 ±0.03
	10	1.00	0.90 ±0.04	1.00	0.51 ±0.02
	20	0.93 ±0.01	0.68 ±0.04	0.87 ±0.02	0.50 ±0.02
ReliefF	5	1.00	1.00	1.00	0.50
	10	1.00	0.93 ±0.01	1.00	0.50
	20	0.94	0.66 ±0.01	0.89 ±0.01	0.46
ReliefF-GA	5	0.68 ±0.25	0.68 ±0.24	0.68 ±0.24	0.50 ±0.02
	10	0.73 ±0.25	0.68 ±0.21	0.72 ±0.25	0.49 ±0.03
	20	0.88 ±0.14	0.66 ±0.08	0.84 ±0.12	0.50 ±0.02
SVM-GA	5	0.65 ±0.17	0.64 ±0.18	0.64 ±0.18	0.51 ±0.02
	10	0.65 ±0.19	0.60 ±0.17	0.63 ±0.20	0.50 ±0.02
	20	0.80 ±0.20	0.63 ±0.11	0.75 ±0.18	0.50 ±0.02
SVM-RFE	5	0.51	0.51	0.50 ±0.01	0.56
	10	0.50	0.48 ±0.01	0.48 ±0.01	0.54
	20	0.49	0.51 ±0.01	0.50 ±0.02	0.50

Table 4: Averaged prediction F-measure with standard deviation of the 31 executions of feature selection algorithms on XOR dataset for all the evaluated subset sizes.

Feature Selector	Num. of features	F-measure			
		SVM	Decision Tree	Random Forest	Naïve Bayes
DecisionTree	5	0.50 ±0.02	0.49 ±0.02	0.49 ±0.02	0.48 ±0.03
	10	0.49 ±0.02	0.49 ±0.03	0.48 ±0.03	0.49 ±0.02
	20	0.49 ±0.09	0.50 ±0.06	0.49 ±0.07	0.48 ±0.01
KW Filter	5	0.55	0.54	0.54 ±0.01	0.55
	10	0.51	0.52 ±0.01	0.52 ±0.01	0.53
	20	0.53	0.48 ±0.01	0.50 ±0.02	0.54
Lasso	5	0.52	0.50	0.51 ±0.01	0.57
	10	0.54	0.49 ±0.01	0.48 ±0.01	0.56
	20	0.50	0.52 ±0.01	0.51 ±0.01	0.51
LinearSVM	5	0.51	0.50	0.52 ±0.01	0.54
	10	0.53	0.52 ±0.01	0.53 ±0.01	0.56
	20	0.48	0.50 ±0.01	0.49 ±0.01	0.52
MI Filter	5	0.49 ±0.03	0.49 ±0.03	0.49 ±0.03	0.49 ±0.03
	10	0.53 ±0.13	0.52 ±0.11	0.53 ±0.13	0.49 ±0.02
	20	0.56 ±0.15	0.52 ±0.07	0.56 ±0.13	0.49 ±0.02
MRMR	5	0.50 ±0.03	0.50 ±0.03	0.50 ±0.03	0.50 ±0.03
	10	0.49 ±0.02	0.49 ±0.03	0.49 ±0.02	0.49 ±0.02
	20	0.58 ±0.18	0.53 ±0.06	0.57 ±0.16	0.49 ±0.02
RandomForest	5	1.00	1.00	1.00	0.51 ±0.03
	10	1.00	0.90 ±0.04	1.00	0.51 ±0.02
	20	0.93 ±0.01	0.68 ±0.04	0.87 ±0.02	0.50 ±0.02
ReliefF	5	1.00	1.00	1.00	0.50
	10	1.00	0.93 ±0.01	1.00	0.50
	20	0.94	0.66 ±0.01	0.89 ±0.01	0.46
ReliefF-GA	5	0.67 ±0.25	0.68 ±0.24	0.68 ±0.24	0.50 ±0.02
	10	0.73 ±0.25	0.68 ±0.22	0.72 ±0.25	0.49 ±0.03
	20	0.88 ±0.14	0.66 ±0.08	0.84 ±0.12	0.50 ±0.02
SVM-GA	5	0.65 ±0.18	0.64 ±0.18	0.64 ±0.18	0.51 ±0.02
	10	0.65 ±0.19	0.60 ±0.17	0.63 ±0.20	0.50 ±0.02
	20	0.80 ±0.20	0.63 ±0.12	0.75 ±0.18	0.50 ±0.02
SVM-RFE	5	0.51	0.51	0.50 ±0.01	0.56
	10	0.50	0.48 ±0.01	0.48 ±0.01	0.54
	20	0.49	0.51 ±0.01	0.50 ±0.02	0.50

Table 5: Averaged prediction accuracy with standard deviation of the 31 executions of feature selection algorithms on Synth_A dataset for all the evaluated subset sizes.

Feature Selector	Num. of features	Accuracy							
		SVM		Decision Tree		Random Forest		Naive Bayes	
DecisionTree	5	0.72	± 0.03	0.86	± 0.02	0.81	± 0.04	0.70	± 0.04
	10	0.68	± 0.04	0.85	± 0.03	0.78	± 0.03	0.68	± 0.05
	20	0.66	± 0.03	0.83	± 0.03	0.72	± 0.04	0.64	± 0.04
	50	0.61	± 0.03	0.74	± 0.04	0.62	± 0.04	0.55	± 0.03
KW Filter	100	0.62	± 0.02	0.70	± 0.04	0.60	± 0.04	0.57	± 0.03
	5	0.72		0.58	± 0.01	0.70	± 0.02	0.77	
	10	0.82		0.68	± 0.02	0.80	± 0.03	0.82	
	20	0.91		0.64	± 0.02	0.86	± 0.02	0.90	
Lasso	50	0.93		0.58	± 0.02	0.89	± 0.02	0.93	
	100	0.98		0.58	± 0.03	0.92	± 0.02	0.98	
	5	0.83		0.69	± 0.02	0.80	± 0.02	0.77	
	10	0.82		0.62	± 0.02	0.77	± 0.02	0.82	
LinearSVM	20	0.93		0.62	± 0.02	0.87	± 0.02	0.90	
	50	0.97		0.57	± 0.02	0.87	± 0.02	0.94	
	100	0.93		0.56	± 0.02	0.83	± 0.03	0.87	
	5	0.76		0.69	± 0.02	0.75	± 0.03	0.75	
MI Filter	10	0.83		0.71	± 0.02	0.82	± 0.02	0.87	
	20	0.88		0.62	± 0.02	0.85	± 0.02	0.89	
	50	0.95		0.59	± 0.02	0.87	± 0.02	0.93	
	100	0.99		0.52	± 0.02	0.89	± 0.03	0.97	
MRMR	5	0.57		0.63	± 0.02	0.70	± 0.02	0.57	
	10	0.66		0.54	± 0.02	0.71	± 0.02	0.60	
	20	0.54		0.54	± 0.03	0.73	± 0.03	0.63	
	50	0.61	± 0.01	0.55	± 0.02	0.72	± 0.03	0.69	± 0.01
RandomForest	100	0.71	± 0.01	0.61	± 0.02	0.80	± 0.03	0.80	± 0.01
	5	0.63		0.67	± 0.02	0.75	± 0.02	0.62	
	10	0.65		0.64	± 0.02	0.73	± 0.02	0.61	
	20	0.56		0.52	± 0.02	0.72	± 0.03	0.61	
ReliefF	50	0.61	± 0.01	0.52	± 0.03	0.71	± 0.03	0.72	± 0.02
	100	0.69	± 0.01	0.55	± 0.02	0.78	± 0.03	0.79	± 0.01
	5	0.62	± 0.05	0.56	± 0.05	0.61	± 0.06	0.64	± 0.05
	10	0.68	± 0.07	0.60	± 0.05	0.70	± 0.05	0.69	± 0.06
ReliefF-GA	20	0.71	± 0.06	0.59	± 0.04	0.70	± 0.05	0.70	± 0.07
	50	0.73	± 0.06	0.58	± 0.05	0.70	± 0.06	0.72	± 0.06
	100	0.71	± 0.05	0.56	± 0.05	0.68	± 0.05	0.70	± 0.05
	5	0.73		0.66	± 0.01	0.71	± 0.02	0.73	
SVM-GA	10	0.79		0.60	± 0.02	0.76	± 0.02	0.80	
	20	0.87		0.63	± 0.02	0.85	± 0.02	0.89	
	50	0.91		0.64	± 0.03	0.88	± 0.02	0.89	
	100	0.95		0.59	± 0.03	0.89	± 0.03	0.96	
SVM-RFE	5	0.59	± 0.08	0.55	± 0.06	0.59	± 0.06	0.60	± 0.07
	10	0.63	± 0.07	0.57	± 0.05	0.64	± 0.07	0.64	± 0.07
	20	0.66	± 0.06	0.57	± 0.06	0.67	± 0.06	0.67	± 0.06
	50	0.73	± 0.04	0.57	± 0.07	0.70	± 0.05	0.71	± 0.04
SVM	100	0.78	± 0.06	0.55	± 0.05	0.73	± 0.05	0.77	± 0.05
	5	0.88	± 0.01	0.71	± 0.04	0.81	± 0.04	0.80	± 0.03
	10	0.88	± 0.02	0.66	± 0.05	0.82	± 0.04	0.87	± 0.03
	20	0.94	± 0.02	0.62	± 0.05	0.87	± 0.04	0.91	± 0.03
SVM-RFE	50	0.96	± 0.02	0.60	± 0.04	0.84	± 0.03	0.90	± 0.03
	100	0.96	± 0.02	0.58	± 0.05	0.78	± 0.05	0.85	± 0.04
	5	0.78		0.67	± 0.02	0.78	± 0.02	0.80	
	10	0.85		0.72	± 0.02	0.79	± 0.03	0.79	
SVM	20	0.99		0.63	± 0.03	0.88	± 0.02	0.96	
	50	1.00		0.57	± 0.03	0.93	± 0.02	0.98	
	100	1.00		0.57	± 0.02	0.93	± 0.02	1.00	

Table 6: Averaged prediction F-measure with standard deviation of the 31 executions of feature selection algorithms on Synth_A dataset for all the evaluated subset sizes.

Feature Selector	Num. of features	F-measure							
		SVM		Decision Tree		Random Forest		Naive Bayes	
DecisionTree	5	0.71	± 0.03	0.86	± 0.02	0.80	± 0.04	0.69	± 0.04
	10	0.68	± 0.04	0.84	± 0.03	0.78	± 0.04	0.68	± 0.05
	20	0.66	± 0.03	0.83	± 0.03	0.71	± 0.04	0.63	± 0.04
	50	0.60	± 0.03	0.73	± 0.04	0.62	± 0.04	0.54	± 0.03
KW Filter	100	0.61	± 0.03	0.69	± 0.04	0.59	± 0.04	0.55	± 0.03
	5	0.72		0.57	± 0.02	0.70	± 0.02	0.77	
	10	0.82		0.68	± 0.02	0.80	± 0.03	0.82	
	20	0.91		0.63	± 0.02	0.86	± 0.02	0.90	
Lasso	50	0.93		0.57	± 0.02	0.89	± 0.02	0.93	
	100	0.98		0.58	± 0.03	0.92	± 0.02	0.98	
	5	0.83		0.69	± 0.02	0.80	± 0.02	0.77	
	10	0.82		0.62	± 0.02	0.77	± 0.02	0.82	
LinearSVM	20	0.93		0.61	± 0.02	0.86	± 0.02	0.90	
	50	0.97		0.56	± 0.02	0.87	± 0.02	0.94	
	100	0.93		0.55	± 0.02	0.83	± 0.03	0.87	
	5	0.76		0.68	± 0.02	0.75	± 0.03	0.75	
MI Filter	10	0.83		0.71	± 0.02	0.82	± 0.02	0.87	
	20	0.88		0.61	± 0.02	0.85	± 0.02	0.89	
	50	0.95		0.58	± 0.02	0.87	± 0.02	0.93	
	100	0.99		0.52	± 0.02	0.89	± 0.03	0.97	
MRMR	5	0.56		0.62	± 0.02	0.70	± 0.02	0.57	
	10	0.65		0.53	± 0.02	0.71	± 0.03	0.58	
	20	0.54		0.54	± 0.03	0.73	± 0.03	0.62	
	50	0.61	± 0.01	0.54	± 0.02	0.72	± 0.04	0.69	± 0.01
RandomForest	100	0.70	± 0.01	0.60	± 0.02	0.80	± 0.03	0.80	± 0.01
	5	0.62		0.66	± 0.02	0.74	± 0.02	0.62	
	10	0.64		0.63	± 0.02	0.72	± 0.02	0.60	
	20	0.55		0.51	± 0.02	0.72	± 0.03	0.60	
ReliefF	50	0.60	± 0.01	0.51	± 0.03	0.71	± 0.03	0.71	± 0.02
	100	0.69		0.55	± 0.02	0.77	± 0.03	0.79	± 0.01
	5	0.61	± 0.06	0.55	± 0.06	0.61	± 0.06	0.64	± 0.05
	10	0.68	± 0.07	0.60	± 0.05	0.69	± 0.05	0.68	± 0.06
ReliefF-GA	20	0.71	± 0.06	0.58	± 0.05	0.70	± 0.05	0.70	± 0.07
	50	0.73	± 0.06	0.57	± 0.05	0.70	± 0.06	0.71	± 0.06
	100	0.71	± 0.05	0.55	± 0.05	0.68	± 0.05	0.69	± 0.05
	5	0.73		0.65	± 0.01	0.71	± 0.02	0.73	
SVM-GA	10	0.79		0.60	± 0.02	0.76	± 0.02	0.80	
	20	0.87		0.63	± 0.02	0.85	± 0.03	0.89	
	50	0.91		0.63	± 0.03	0.87	± 0.02	0.89	
	100	0.95		0.58	± 0.03	0.89	± 0.03	0.96	
SVM-RFE	5	0.59	± 0.08	0.54	± 0.06	0.58	± 0.06	0.59	± 0.07
	10	0.62	± 0.07	0.56	± 0.06	0.63	± 0.07	0.63	± 0.07
	20	0.65	± 0.06	0.56	± 0.06	0.66	± 0.06	0.66	± 0.06
	50	0.72	± 0.04	0.56	± 0.07	0.70	± 0.05	0.70	± 0.04
SVM	100	0.77	± 0.06	0.54	± 0.05	0.72	± 0.05	0.77	± 0.05
	5	0.88	± 0.01	0.70	± 0.04	0.80	± 0.04	0.80	± 0.03
	10	0.88	± 0.02	0.65	± 0.05	0.82	± 0.04	0.87	± 0.03
	20	0.94	± 0.02	0.62	± 0.05	0.86	± 0.04	0.91	± 0.03
SVM-RFE	50	0.96	± 0.02	0.59	± 0.04	0.83	± 0.03	0.90	± 0.03
	100	0.96	± 0.02	0.57	± 0.05	0.78	± 0.05	0.85	± 0.04
	5	0.78		0.66	± 0.02	0.78	± 0.02	0.80	
	10	0.85		0.71	± 0.02	0.79	± 0.03	0.79	
SVM	20	0.99		0.62	± 0.03	0.88	± 0.02	0.96	
	50	1.00		0.56	± 0.03	0.93	± 0.02	0.98	
	100	1.00		0.56	± 0.03	0.93	± 0.02	1.00	

Table 7: Averaged prediction accuracy with standard deviation of the 31 executions of feature selection algorithms on Synth_B dataset for all the evaluated subset sizes.

Feature Selector	Num. of features	Accuracy							
		SVM		Decision Tree		Random Forest		Naive Bayes	
DecisionTree	5	0.79		0.83	± 0.01	0.82	± 0.01	0.81	
	10	0.74	± 0.03	0.84	± 0.01	0.80	± 0.02	0.78	± 0.02
	20	0.63	± 0.02	0.84	± 0.02	0.75	± 0.03	0.71	± 0.02
	50	0.62	± 0.02	0.83	± 0.02	0.71	± 0.02	0.69	± 0.03
KW Filter	100	0.54	± 0.02	0.76	± 0.03	0.66	± 0.04	0.61	± 0.02
	5	0.81		0.73	± 0.01	0.79	± 0.01	0.81	
	10	0.77		0.69	± 0.01	0.81	± 0.01	0.78	
	20	0.85		0.76	± 0.02	0.81	± 0.02	0.86	
Lasso	50	0.95		0.65	± 0.02	0.87	± 0.02	0.93	
	100	0.98		0.64	± 0.02	0.92	± 0.02	0.94	
	5	0.81		0.64	± 0.01	0.75	± 0.02	0.79	
	10	0.81		0.70	± 0.02	0.80	± 0.02	0.83	
LinearSVM	20	0.89		0.68	± 0.02	0.81	± 0.02	0.88	
	50	0.95		0.62	± 0.03	0.89	± 0.02	0.96	
	100	0.93		0.61	± 0.02	0.85	± 0.03	0.94	
	5	0.80		0.72	± 0.02	0.77	± 0.02	0.77	
MI Filter	10	0.81		0.73	± 0.01	0.81	± 0.01	0.86	
	20	0.89		0.71	± 0.02	0.84	± 0.02	0.88	
	50	0.94		0.67	± 0.02	0.91	± 0.02	0.96	
	100	0.99		0.66	± 0.02	0.91	± 0.03	0.97	
MRMR	5	0.51		0.53	± 0.02	0.59	± 0.02	0.42	
	10	0.56	± 0.05	0.55	± 0.03	0.65	± 0.05	0.59	± 0.07
	20	0.69		0.65	± 0.02	0.75	± 0.02	0.75	
	50	0.79		0.69	± 0.02	0.83	± 0.02	0.79	
RandomForest	100	0.76		0.68	± 0.02	0.84	± 0.03	0.85	
	5	0.45		0.50	± 0.01	0.58	± 0.02	0.43	
	10	0.59		0.58	± 0.03	0.68	± 0.02	0.66	± 0.01
	20	0.68		0.67	± 0.02	0.75	± 0.02	0.75	
ReliefF	50	0.77	± 0.01	0.71	± 0.02	0.82	± 0.03	0.82	± 0.01
	100	0.77	± 0.01	0.69	± 0.02	0.83	± 0.03	0.85	± 0.01
	5	0.64	± 0.07	0.60	± 0.06	0.64	± 0.07	0.65	± 0.06
	10	0.68	± 0.07	0.62	± 0.05	0.69	± 0.06	0.69	± 0.07
ReliefF-GA	20	0.71	± 0.05	0.61	± 0.06	0.70	± 0.05	0.72	± 0.05
	50	0.73	± 0.06	0.59	± 0.07	0.70	± 0.05	0.72	± 0.06
	100	0.70	± 0.05	0.59	± 0.08	0.68	± 0.06	0.70	± 0.05
	5	0.75		0.66	± 0.02	0.74	± 0.01	0.78	
SVM-GA	10	0.77		0.60	± 0.02	0.75	± 0.02	0.80	
	20	0.79		0.74	± 0.02	0.80	± 0.02	0.82	
	50	0.86		0.72	± 0.03	0.84	± 0.02	0.87	
	100	0.91		0.70	± 0.04	0.85	± 0.02	0.91	
SVM-RFE	5	0.62	± 0.07	0.57	± 0.04	0.62	± 0.06	0.63	± 0.05
	10	0.66	± 0.05	0.57	± 0.04	0.63	± 0.05	0.65	± 0.04
	20	0.67	± 0.06	0.58	± 0.05	0.66	± 0.04	0.67	± 0.05
	50	0.70	± 0.04	0.56	± 0.06	0.67	± 0.05	0.70	± 0.06
SVM	100	0.77	± 0.05	0.56	± 0.06	0.70	± 0.04	0.76	± 0.05
	5	0.89	± 0.01	0.72	± 0.05	0.81	± 0.03	0.82	± 0.03
	10	0.88	± 0.03	0.68	± 0.04	0.81	± 0.03	0.88	± 0.02
	20	0.76	± 0.10	0.60	± 0.07	0.72	± 0.08	0.76	± 0.10
SVM-RFE	50	0.53	± 0.06	0.49	± 0.06	0.50	± 0.05	0.52	± 0.05
	100	0.52	± 0.06	0.52	± 0.06	0.51	± 0.06	0.51	± 0.07
	5	0.80		0.67	± 0.02	0.74	± 0.01	0.79	
	10	0.91		0.74	± 0.02	0.82	± 0.02	0.85	
SVM-RFE	20	0.98		0.67	± 0.02	0.88	± 0.02	0.94	
	50	1.00		0.63	± 0.03	0.92	± 0.02	1.00	
	100	1.00		0.70	± 0.02	0.93	± 0.02	1.00	

Table 8: Averaged prediction F-measure with standard deviation of the 31 executions of feature selection algorithms on Synth_B dataset for all the evaluated subset sizes.

Feature Selector	Num. of features	F-measure							
		SVM		Decision Tree		Random Forest		Naive Bayes	
DecisionTree	5	0.79		0.83	± 0.01	0.82	± 0.01	0.81	
	10	0.74	± 0.03	0.84	± 0.01	0.80	± 0.02	0.78	± 0.02
	20	0.62	± 0.02	0.84	± 0.02	0.75	± 0.03	0.70	± 0.02
	50	0.61	± 0.03	0.83	± 0.02	0.71	± 0.02	0.68	± 0.03
KW Filter	100	0.52	± 0.03	0.76	± 0.03	0.66	± 0.04	0.61	± 0.02
	5	0.81		0.73	± 0.01	0.79	± 0.01	0.81	
	10	0.76		0.69	± 0.01	0.81	± 0.01	0.77	
	20	0.85		0.76	± 0.02	0.81	± 0.02	0.86	
Lasso	50	0.95		0.64	± 0.02	0.87	± 0.02	0.93	
	100	0.98		0.63	± 0.02	0.91	± 0.02	0.94	
	5	0.81		0.63	± 0.01	0.75	± 0.02	0.79	
	10	0.81		0.70	± 0.02	0.80	± 0.02	0.83	
LinearSVM	20	0.89		0.68	± 0.02	0.80	± 0.02	0.88	
	50	0.95		0.61	± 0.03	0.89	± 0.02	0.96	
	100	0.93		0.60	± 0.03	0.85	± 0.03	0.94	
	5	0.80		0.72	± 0.02	0.76	± 0.02	0.77	
MI Filter	10	0.81		0.73	± 0.01	0.81	± 0.01	0.86	
	20	0.89		0.71	± 0.02	0.84	± 0.02	0.88	
	50	0.94		0.67	± 0.02	0.91	± 0.02	0.96	
	100	0.99		0.65	± 0.02	0.91	± 0.03	0.97	
MRMR	5	0.51		0.52	± 0.02	0.58	± 0.02	0.41	
	10	0.55	± 0.05	0.55	± 0.03	0.64	± 0.05	0.58	± 0.07
	20	0.68		0.65	± 0.02	0.75	± 0.02	0.75	
	50	0.79		0.68	± 0.02	0.83	± 0.02	0.79	
RandomForest	100	0.76		0.68	± 0.02	0.84	± 0.03	0.85	
	5	0.42		0.49	± 0.02	0.58	± 0.02	0.42	
	10	0.58		0.58	± 0.03	0.68	± 0.02	0.66	± 0.01
	20	0.68		0.67	± 0.02	0.75	± 0.02	0.75	
ReliefF	50	0.77	± 0.01	0.71	± 0.02	0.81	± 0.03	0.82	± 0.01
	100	0.77	± 0.01	0.68	± 0.02	0.83	± 0.03	0.85	± 0.01
	5	0.64	± 0.07	0.59	± 0.06	0.64	± 0.07	0.64	± 0.06
	10	0.67	± 0.08	0.62	± 0.05	0.68	± 0.06	0.69	± 0.07
ReliefF-GA	20	0.70	± 0.05	0.60	± 0.06	0.70	± 0.05	0.72	± 0.05
	50	0.72	± 0.06	0.59	± 0.07	0.70	± 0.05	0.72	± 0.06
	100	0.69	± 0.05	0.58	± 0.08	0.68	± 0.06	0.70	± 0.05
	5	0.75		0.66	± 0.02	0.74	± 0.01	0.78	
SVM-GA	10	0.77		0.60	± 0.02	0.74	± 0.02	0.80	
	20	0.79		0.74	± 0.02	0.80	± 0.02	0.82	
	50	0.86		0.71	± 0.03	0.84	± 0.02	0.87	
	100	0.91		0.70	± 0.04	0.85	± 0.02	0.91	
SVM-RFE	5	0.61	± 0.07	0.56	± 0.05	0.61	± 0.06	0.61	± 0.06
	10	0.65	± 0.05	0.56	± 0.04	0.62	± 0.05	0.64	± 0.05
	20	0.67	± 0.06	0.57	± 0.05	0.65	± 0.04	0.67	± 0.05
	50	0.69	± 0.04	0.55	± 0.06	0.66	± 0.05	0.69	± 0.06
SVM	100	0.76	± 0.05	0.56	± 0.06	0.69	± 0.04	0.76	± 0.05
	5	0.89	± 0.01	0.72	± 0.05	0.81	± 0.03	0.82	± 0.03
	10	0.88	± 0.03	0.68	± 0.04	0.80	± 0.04	0.87	± 0.02
	20	0.76	± 0.10	0.59	± 0.07	0.72	± 0.08	0.76	± 0.10
SVM	50	0.52	± 0.06	0.48	± 0.06	0.49	± 0.05	0.52	± 0.05
	100	0.51	± 0.07	0.51	± 0.07	0.51	± 0.06	0.50	± 0.07
	5	0.80		0.67	± 0.02	0.74	± 0.01	0.79	
	10	0.91		0.74	± 0.02	0.82	± 0.02	0.85	
SVM	20	0.98		0.67	± 0.02	0.88	± 0.02	0.94	
	50	1.00		0.62	± 0.03	0.92	± 0.02	1.00	
	100	1.00		0.70	± 0.02	0.92	± 0.02	1.00	

Table 9: Averaged prediction accuracy with standard deviation of the 31 executions of feature selection algorithms on Liver dataset for all the evaluated subset sizes.

Feature Selector	Num. of features	Accuracy			
		SVM	Decision Tree	Random Forest	Naive Bayes
Decision Tree	5	0.87 ±0.06	0.94 ±0.03	0.93 ±0.02	0.89 ±0.05
	10	0.86 ±0.05	0.94 ±0.02	0.92 ±0.03	0.86 ±0.04
	20	0.81 ±0.04	0.94 ±0.03	0.90 ±0.03	0.75 ±0.04
	50	0.77 ±0.04	0.91 ±0.02	0.86 ±0.04	0.69 ±0.04
	100	0.80 ±0.03	0.92 ±0.02	0.87 ±0.03	0.75 ±0.03
	200	0.83 ±0.02	0.87 ±0.03	0.89 ±0.03	0.83 ±0.01
KW Filter	5	0.96	0.88 ±0.02	0.97 ±0.01	0.98
	10	0.98	0.86 ±0.03	0.98	0.98
	20	0.98	0.84 ±0.02	0.98	0.98
	50	0.98	0.83 ±0.03	0.98 ±0.01	0.98
	100	0.98	0.82 ±0.04	0.98 ±0.01	0.98
	200	0.98	0.81 ±0.03	0.97 ±0.01	0.98
Lasso	5	0.96	0.89 ±0.01	0.92 ±0.01	0.94
	10	0.96	0.82 ±0.02	0.94 ±0.01	0.96
	20	0.98	0.84 ±0.03	0.97 ±0.01	0.98
	50	0.94	0.83 ±0.03	0.98	0.96
	100	0.98	0.82 ±0.03	0.98	0.96
	200	0.98	0.81 ±0.03	0.98	0.96
LinearSVM	5	0.94	0.89 ±0.02	0.91 ±0.02	0.92
	10	0.94	0.88 ±0.02	0.95 ±0.01	0.92
	20	0.92	0.86 ±0.02	0.92 ±0.01	0.92
	50	0.90	0.83 ±0.02	0.92 ±0.02	0.90
	100	0.92	0.84 ±0.03	0.94 ±0.02	0.90
	200	0.98	0.83 ±0.02	0.95 ±0.02	0.90
MI Filter	5	0.98	0.89 ±0.02	0.97 ±0.01	0.98
	10	0.96	0.86 ±0.03	0.98	0.98
	20	0.94	0.85 ±0.03	0.98	0.98
	50	0.96	0.84 ±0.03	0.98	0.98
	100	0.98	0.82 ±0.03	0.98	0.98
	200	0.96	0.82 ±0.03	0.97 ±0.01	0.96
MRMR	5	0.92	0.92	0.95 ±0.02	0.94
	10	0.94	0.87 ±0.04	0.94 ±0.01	0.94
	20	0.96	0.86 ±0.04	0.98	0.98
	50	0.98	0.85 ±0.03	0.98	0.98
	100	0.98	0.82 ±0.03	0.98 ±0.01	0.98
	200	0.98	0.82 ±0.03	0.98 ±0.01	0.98
Random Forest	5	0.91 ±0.05	0.83 ±0.04	0.91 ±0.03	0.91 ±0.04
	10	0.94 ±0.02	0.82 ±0.06	0.93 ±0.03	0.93 ±0.02
	20	0.95 ±0.02	0.82 ±0.05	0.94 ±0.02	0.93 ±0.03
	50	0.94 ±0.02	0.82 ±0.05	0.94 ±0.03	0.90 ±0.04
	100	0.93 ±0.03	0.80 ±0.06	0.93 ±0.02	0.87 ±0.04
	200	0.93 ±0.02	0.81 ±0.06	0.94 ±0.03	0.86 ±0.04
ReliefF	5	0.90	0.84 ±0.01	0.90 ±0.01	0.92
	10	0.92	0.87 ±0.03	0.94	0.96
	20	0.98	0.88 ±0.03	0.97 ±0.01	0.96
	50	0.98	0.85 ±0.03	0.97 ±0.01	0.92
	100	0.98	0.83 ±0.04	0.96 ±0.01	0.94
	200	0.98	0.81 ±0.04	0.97 ±0.01	0.94
ReliefF-GA	5	0.87 ±0.07	0.79 ±0.07	0.85 ±0.06	0.88 ±0.05
	10	0.91 ±0.04	0.79 ±0.08	0.90 ±0.03	0.91 ±0.02
	20	0.95 ±0.02	0.80 ±0.06	0.92 ±0.04	0.93 ±0.03
	50	0.97 ±0.01	0.82 ±0.05	0.95 ±0.02	0.96 ±0.02
	100	0.96 ±0.01	0.80 ±0.05	0.95 ±0.02	0.96 ±0.01
	200	0.96 ±0.01	0.81 ±0.04	0.96 ±0.01	0.96 ±0.01
SVM-GA	5	1.00	0.87 ±0.04	0.92 ±0.03	0.93 ±0.04
	10	0.97 ±0.02	0.84 ±0.06	0.94 ±0.04	0.95 ±0.03
	20	0.97 ±0.02	0.82 ±0.06	0.96 ±0.03	0.96 ±0.03
	50	0.97 ±0.01	0.79 ±0.06	0.96 ±0.03	0.95 ±0.03
	100	0.97 ±0.01	0.78 ±0.06	0.96 ±0.02	0.94 ±0.03
	200	0.96 ±0.01	0.80 ±0.06	0.95 ±0.03	0.93 ±0.03
SVM-RFE	5	0.98	0.88 ±0.02	0.94	0.98
	10	0.98	0.84 ±0.02	0.95 ±0.01	0.96
	20	0.98	0.85 ±0.04	0.97 ±0.01	0.98
	50	0.98	0.81 ±0.03	0.98	0.98
	100	0.98	0.84 ±0.03	0.97 ±0.01	0.96
	200	0.98	0.81 ±0.03	0.97 ±0.01	0.96

Table 10: Averaged prediction F-measure with standard deviation of the 31 executions of feature selection algorithms on Liver dataset for all the evaluated subset sizes.

Feature Selector	Num. of features	F-measure			
		SVM	Decision Tree	Random Forest	Naive Bayes
Decision Tree	5	0.86 ±0.07	0.93 ±0.03	0.92 ±0.02	0.89 ±0.05
	10	0.85 ±0.06	0.94 ±0.02	0.92 ±0.03	0.85 ±0.04
	20	0.80 ±0.04	0.93 ±0.03	0.89 ±0.03	0.73 ±0.05
	50	0.76 ±0.04	0.91 ±0.02	0.85 ±0.05	0.68 ±0.04
	100	0.79 ±0.03	0.92 ±0.02	0.87 ±0.03	0.74 ±0.03
	200	0.83 ±0.02	0.87 ±0.03	0.89 ±0.03	0.83 ±0.01
KW Filter	5	0.96	0.87 ±0.02	0.97 ±0.01	0.98
	10	0.98	0.86 ±0.03	0.98	0.98
	20	0.98	0.84 ±0.02	0.98	0.98
	50	0.98	0.82 ±0.03	0.98 ±0.01	0.98
	100	0.98	0.82 ±0.04	0.98 ±0.01	0.98
	200	0.98	0.81 ±0.03	0.97 ±0.01	0.98
Lasso	5	0.96	0.89 ±0.01	0.92 ±0.01	0.94
	10	0.96	0.82 ±0.02	0.94 ±0.01	0.96
	20	0.98	0.84 ±0.03	0.97 ±0.01	0.98
	50	0.94	0.82 ±0.03	0.98	0.96
	100	0.98	0.81 ±0.03	0.98	0.96
	200	0.98	0.81 ±0.03	0.98	0.96
LinearSVM	5	0.94	0.89 ±0.02	0.91 ±0.02	0.91
	10	0.94	0.88 ±0.02	0.95 ±0.01	0.91
	20	0.91	0.86 ±0.02	0.92 ±0.01	0.91
	50	0.89	0.83 ±0.02	0.91 ±0.02	0.89
	100	0.91	0.84 ±0.03	0.94 ±0.02	0.89
	200	0.98	0.83 ±0.02	0.94 ±0.02	0.89
MI Filter	5	0.98	0.89 ±0.02	0.97 ±0.01	0.98
	10	0.96	0.85 ±0.04	0.98	0.98
	20	0.94	0.85 ±0.03	0.98	0.98
	50	0.96	0.84 ±0.03	0.98	0.98
	100	0.98	0.82 ±0.03	0.98	0.98
	200	0.96	0.82 ±0.04	0.97 ±0.01	0.96
MRMR	5	0.91	0.92	0.95 ±0.02	0.94
	10	0.94	0.86 ±0.04	0.94 ±0.01	0.94
	20	0.96	0.86 ±0.04	0.98	0.98
	50	0.98	0.85 ±0.03	0.98	0.98
	100	0.98	0.82 ±0.04	0.98 ±0.01	0.98
	200	0.98	0.81 ±0.04	0.98 ±0.01	0.98
Random Forest	5	0.91 ±0.05	0.83 ±0.04	0.90 ±0.03	0.91 ±0.04
	10	0.94 ±0.02	0.81 ±0.06	0.93 ±0.03	0.93 ±0.03
	20	0.95 ±0.02	0.81 ±0.05	0.94 ±0.03	0.93 ±0.03
	50	0.94 ±0.02	0.81 ±0.06	0.94 ±0.03	0.90 ±0.04
	100	0.93 ±0.03	0.80 ±0.06	0.93 ±0.03	0.87 ±0.04
	200	0.93 ±0.02	0.81 ±0.06	0.94 ±0.03	0.86 ±0.04
ReliefF	5	0.89	0.84 ±0.01	0.90 ±0.01	0.92
	10	0.91	0.87 ±0.03	0.94	0.96
	20	0.98	0.87 ±0.03	0.97 ±0.01	0.96
	50	0.98	0.84 ±0.03	0.97 ±0.01	0.91
	100	0.98	0.83 ±0.04	0.96 ±0.01	0.93
	200	0.98	0.81 ±0.04	0.97 ±0.01	0.93
ReliefF-GA	5	0.86 ±0.08	0.78 ±0.08	0.85 ±0.07	0.87 ±0.06
	10	0.91 ±0.04	0.78 ±0.08	0.90 ±0.03	0.91 ±0.03
	20	0.95 ±0.02	0.79 ±0.06	0.92 ±0.04	0.93 ±0.03
	50	0.97 ±0.01	0.81 ±0.06	0.95 ±0.02	0.96 ±0.02
	100	0.96 ±0.01	0.79 ±0.05	0.95 ±0.02	0.96 ±0.01
	200	0.96 ±0.01	0.81 ±0.04	0.96 ±0.01	0.96 ±0.01
SVM-GA	5	1.00	0.87 ±0.05	0.92 ±0.03	0.93 ±0.04
	10	0.97 ±0.02	0.84 ±0.06	0.94 ±0.04	0.95 ±0.03
	20	0.97 ±0.02	0.82 ±0.06	0.95 ±0.03	0.96 ±0.04
	50	0.97 ±0.01	0.78 ±0.07	0.96 ±0.03	0.95 ±0.03
	100	0.97 ±0.01	0.77 ±0.07	0.96 ±0.02	0.94 ±0.03
	200	0.96 ±0.01	0.79 ±0.07	0.95 ±0.03	0.93 ±0.03
SVM-RFE	5	0.98	0.87 ±0.02	0.94	0.98
	10	0.98	0.83 ±0.02	0.95 ±0.01	0.96
	20	0.98	0.85 ±0.04	0.97 ±0.01	0.98
	50	0.98	0.81 ±0.03	0.98	0.98
	100	0.98	0.84 ±0.03	0.97 ±0.01	0.96
	200	0.98	0.81 ±0.03	0.97 ±0.01	0.96

Table 11: Averaged prediction accuracy with standard deviation of the 31 executions of feature selection algorithms on Prostate dataset for all the evaluated subset sizes.

Feature Selector	Num. of features	Accuracy			
		SVM	Decision Tree	Random Forest	Naïve Bayes
Decision Tree	5	0.71	0.75 ±0.02	0.79 ±0.01	0.70
	10	0.70 ±0.04	0.81 ±0.03	0.75 ±0.03	0.66 ±0.03
	20	0.67 ±0.04	0.77 ±0.03	0.70 ±0.03	0.62 ±0.04
	50	0.63 ±0.03	0.75 ±0.03	0.65 ±0.03	0.59 ±0.03
	100	0.71 ±0.02	0.66 ±0.02	0.69 ±0.02	0.65 ±0.01
	200	0.66 ±0.01	0.63 ±0.03	0.67 ±0.03	0.67 ±0.01
KW Filter	5	0.71	0.64 ±0.01	0.70 ±0.01	0.75
	10	0.73	0.67 ±0.02	0.68 ±0.02	0.76
	20	0.73	0.60 ±0.02	0.72 ±0.01	0.72
	50	0.73	0.63 ±0.02	0.72 ±0.01	0.72
	100	0.74	0.62 ±0.03	0.71 ±0.01	0.70
	200	0.73	0.63 ±0.03	0.73 ±0.01	0.71
Lasso	5	0.69	0.62 ±0.02	0.66 ±0.02	0.70
	10	0.74	0.63 ±0.01	0.71 ±0.02	0.72
	20	0.85	0.68 ±0.02	0.78 ±0.02	0.85
	50	0.87	0.61 ±0.02	0.79 ±0.03	0.79
	100	0.83	0.63 ±0.03	0.77 ±0.02	0.79
	200	0.83	0.57 ±0.02	0.73 ±0.02	0.74
LinearSVM	5	0.70	0.67 ±0.01	0.71 ±0.02	0.70
	10	0.75	0.63 ±0.02	0.73 ±0.02	0.77
	20	0.77	0.68 ±0.02	0.78 ±0.02	0.83
	50	0.87	0.62 ±0.02	0.85 ±0.02	0.85
	100	0.87	0.63 ±0.03	0.81 ±0.03	0.83
	200	0.89	0.64 ±0.02	0.83 ±0.03	0.85
MI Filter	5	0.67	0.54 ±0.02	0.70 ±0.02	0.70
	10	0.64	0.63 ±0.03	0.70 ±0.02	0.68
	20	0.72	0.59 ±0.03	0.72 ±0.02	0.69
	50	0.70	0.63 ±0.02	0.73 ±0.02	0.70
	100	0.72	0.59 ±0.02	0.73 ±0.02	0.72
	200	0.71	0.56 ±0.02	0.72 ±0.01	0.71
MRMR	5	0.65	0.60 ±0.02	0.69 ±0.02	0.63
	10	0.73	0.60 ±0.01	0.75 ±0.02	0.70
	20	0.77	0.60 ±0.02	0.76 ±0.01	0.74
	50	0.73	0.62 ±0.03	0.76 ±0.01	0.74
	100	0.71	0.62 ±0.02	0.75 ±0.02	0.70
	200	0.70	0.61 ±0.02	0.75 ±0.02	0.77
Random Forest	5	0.69 ±0.03	0.60 ±0.05	0.68 ±0.04	0.70 ±0.03
	10	0.70 ±0.04	0.62 ±0.04	0.70 ±0.03	0.72 ±0.03
	20	0.72 ±0.03	0.63 ±0.04	0.73 ±0.02	0.73 ±0.03
	50	0.73 ±0.03	0.63 ±0.05	0.72 ±0.02	0.73 ±0.02
	100	0.71 ±0.03	0.61 ±0.04	0.71 ±0.02	0.72 ±0.03
	200	0.69 ±0.03	0.60 ±0.04	0.70 ±0.03	0.69 ±0.02
ReliefF	5	0.71	0.60 ±0.02	0.69 ±0.01	0.71
	10	0.71	0.63 ±0.02	0.69 ±0.01	0.72
	20	0.75	0.61 ±0.02	0.71 ±0.01	0.75
	50	0.72	0.62 ±0.02	0.70 ±0.02	0.73
	100	0.74	0.65 ±0.02	0.71 ±0.02	0.74
	200	0.75	0.59 ±0.03	0.72 ±0.01	0.77
ReliefF-GA	5	0.66 ±0.04	0.59 ±0.04	0.65 ±0.05	0.67 ±0.04
	10	0.70 ±0.04	0.60 ±0.05	0.67 ±0.04	0.69 ±0.04
	20	0.71 ±0.03	0.61 ±0.05	0.71 ±0.03	0.73 ±0.03
	50	0.73 ±0.03	0.61 ±0.04	0.72 ±0.02	0.73 ±0.02
	100	0.72 ±0.03	0.62 ±0.04	0.71 ±0.02	0.73 ±0.02
	200	0.74 ±0.02	0.59 ±0.05	0.72 ±0.02	0.73 ±0.01
SVM-GA	5	0.88 ±0.01	0.69 ±0.04	0.78 ±0.03	0.81 ±0.03
	10	0.87 ±0.03	0.68 ±0.04	0.82 ±0.03	0.85 ±0.02
	20	0.86 ±0.03	0.65 ±0.05	0.81 ±0.02	0.84 ±0.02
	50	0.81 ±0.03	0.63 ±0.05	0.76 ±0.04	0.79 ±0.03
	100	0.72 ±0.05	0.58 ±0.05	0.70 ±0.04	0.72 ±0.04
	200	0.62 ±0.03	0.55 ±0.04	0.62 ±0.04	0.65 ±0.03
SVM-RFE	5	0.77	0.69 ±0.01	0.72 ±0.02	0.77
	10	0.88	0.70 ±0.02	0.79 ±0.02	0.84
	20	0.97	0.64 ±0.02	0.82 ±0.03	0.85
	50	0.97	0.63 ±0.02	0.84 ±0.02	0.87
	100	0.97	0.62 ±0.02	0.84 ±0.02	0.88
	200	0.97	0.66 ±0.03	0.83 ±0.02	0.90

Table 12: Averaged prediction F-measure with standard deviation of the 31 executions of feature selection algorithms on Prostate dataset for all the evaluated subset sizes.

Feature Selector	Num. of features	F-measure			
		SVM	Decision Tree	Random Forest	Naïve Bayes
Decision Tree	5	0.70	0.75 ±0.02	0.79 ±0.01	0.69
	10	0.69 ±0.04	0.81 ±0.03	0.75 ±0.03	0.66 ±0.03
	20	0.67 ±0.04	0.77 ±0.03	0.70 ±0.03	0.61 ±0.04
	50	0.62 ±0.03	0.75 ±0.03	0.64 ±0.03	0.59 ±0.03
	100	0.70 ±0.02	0.65 ±0.02	0.69 ±0.02	0.64 ±0.02
	200	0.66 ±0.01	0.63 ±0.03	0.67 ±0.03	0.66 ±0.02
KW Filter	5	0.71	0.64 ±0.01	0.69 ±0.01	0.75
	10	0.72	0.66 ±0.02	0.68 ±0.02	0.76
	20	0.73	0.59 ±0.02	0.72 ±0.01	0.72
	50	0.73	0.62 ±0.03	0.72 ±0.01	0.72
	100	0.73	0.61 ±0.03	0.70 ±0.01	0.70
	200	0.73	0.62 ±0.03	0.73 ±0.01	0.71
Lasso	5	0.68	0.61 ±0.02	0.66 ±0.02	0.69
	10	0.74	0.63 ±0.01	0.70 ±0.02	0.72
	20	0.85	0.67 ±0.02	0.78 ±0.02	0.85
	50	0.87	0.61 ±0.02	0.78 ±0.03	0.78
	100	0.83	0.63 ±0.03	0.76 ±0.02	0.78
	200	0.82	0.56 ±0.02	0.72 ±0.02	0.74
LinearSVM	5	0.69	0.66 ±0.01	0.71 ±0.02	0.70
	10	0.75	0.62 ±0.02	0.73 ±0.02	0.77
	20	0.77	0.67 ±0.02	0.77 ±0.02	0.82
	50	0.87	0.62 ±0.02	0.85 ±0.02	0.85
	100	0.86	0.62 ±0.03	0.80 ±0.03	0.83
	200	0.88	0.63 ±0.02	0.82 ±0.03	0.85
MI Filter	5	0.67	0.54 ±0.02	0.70 ±0.02	0.69
	10	0.64	0.63 ±0.03	0.70 ±0.01	0.67
	20	0.72	0.58 ±0.03	0.71 ±0.02	0.68
	50	0.70	0.61 ±0.02	0.73 ±0.02	0.69
	100	0.72	0.58 ±0.02	0.73 ±0.02	0.72
	200	0.71	0.55 ±0.03	0.72 ±0.01	0.71
MRMR	5	0.64	0.60 ±0.02	0.69 ±0.02	0.63
	10	0.73	0.59 ±0.01	0.75 ±0.02	0.69
	20	0.76	0.60 ±0.02	0.76 ±0.01	0.74
	50	0.73	0.61 ±0.03	0.75 ±0.02	0.74
	100	0.71	0.60 ±0.02	0.74 ±0.02	0.70
	200	0.70	0.61 ±0.02	0.75 ±0.02	0.77
Random Forest	5	0.68 ±0.03	0.60 ±0.05	0.68 ±0.04	0.70 ±0.02
	10	0.70 ±0.04	0.61 ±0.04	0.69 ±0.03	0.71 ±0.03
	20	0.72 ±0.03	0.62 ±0.04	0.72 ±0.02	0.73 ±0.03
	50	0.72 ±0.03	0.62 ±0.05	0.72 ±0.02	0.73 ±0.03
	100	0.71 ±0.03	0.60 ±0.04	0.71 ±0.02	0.72 ±0.03
	200	0.69 ±0.03	0.60 ±0.04	0.69 ±0.03	0.68 ±0.02
ReliefF	5	0.71	0.59 ±0.02	0.69 ±0.02	0.71
	10	0.71	0.62 ±0.02	0.69 ±0.01	0.72
	20	0.74	0.60 ±0.02	0.71 ±0.01	0.74
	50	0.72	0.61 ±0.02	0.70 ±0.02	0.73
	100	0.73	0.64 ±0.03	0.71 ±0.02	0.74
	200	0.74	0.57 ±0.03	0.72 ±0.01	0.76
ReliefF-GA	5	0.65 ±0.04	0.58 ±0.05	0.64 ±0.05	0.66 ±0.04
	10	0.69 ±0.04	0.59 ±0.06	0.67 ±0.04	0.69 ±0.04
	20	0.70 ±0.03	0.60 ±0.05	0.70 ±0.03	0.72 ±0.03
	50	0.72 ±0.03	0.60 ±0.04	0.71 ±0.02	0.73 ±0.02
	100	0.72 ±0.03	0.61 ±0.04	0.71 ±0.02	0.73 ±0.02
	200	0.73 ±0.02	0.59 ±0.05	0.71 ±0.02	0.73 ±0.01
SVM-GA	5	0.88 ±0.01	0.68 ±0.04	0.78 ±0.03	0.80 ±0.03
	10	0.87 ±0.03	0.68 ±0.04	0.81 ±0.03	0.85 ±0.02
	20	0.86 ±0.03	0.65 ±0.05	0.80 ±0.02	0.84 ±0.02
	50	0.80 ±0.03	0.62 ±0.05	0.76 ±0.04	0.79 ±0.03
	100	0.72 ±0.05	0.57 ±0.05	0.70 ±0.04	0.72 ±0.04
	200	0.61 ±0.03	0.55 ±0.04	0.61 ±0.04	0.64 ±0.04
SVM-RFE	5	0.77	0.69 ±0.01	0.71 ±0.02	0.76
	10	0.88	0.70 ±0.03	0.78 ±0.02	0.84
	20	0.96	0.64 ±0.02	0.81 ±0.03	0.85
	50	0.97	0.62 ±0.02	0.84 ±0.02	0.87
	100	0.97	0.62 ±0.02	0.84 ±0.02	0.88
	200	0.97	0.66 ±0.03	0.83 ±0.02	0.90

Figure 1: Stability results obtained for kuncheva index, spearman ρ , pearson correlation and canberra distance metrics applied on all 5 datasets with significant amounts of perturbation (Bootstrap sampling).

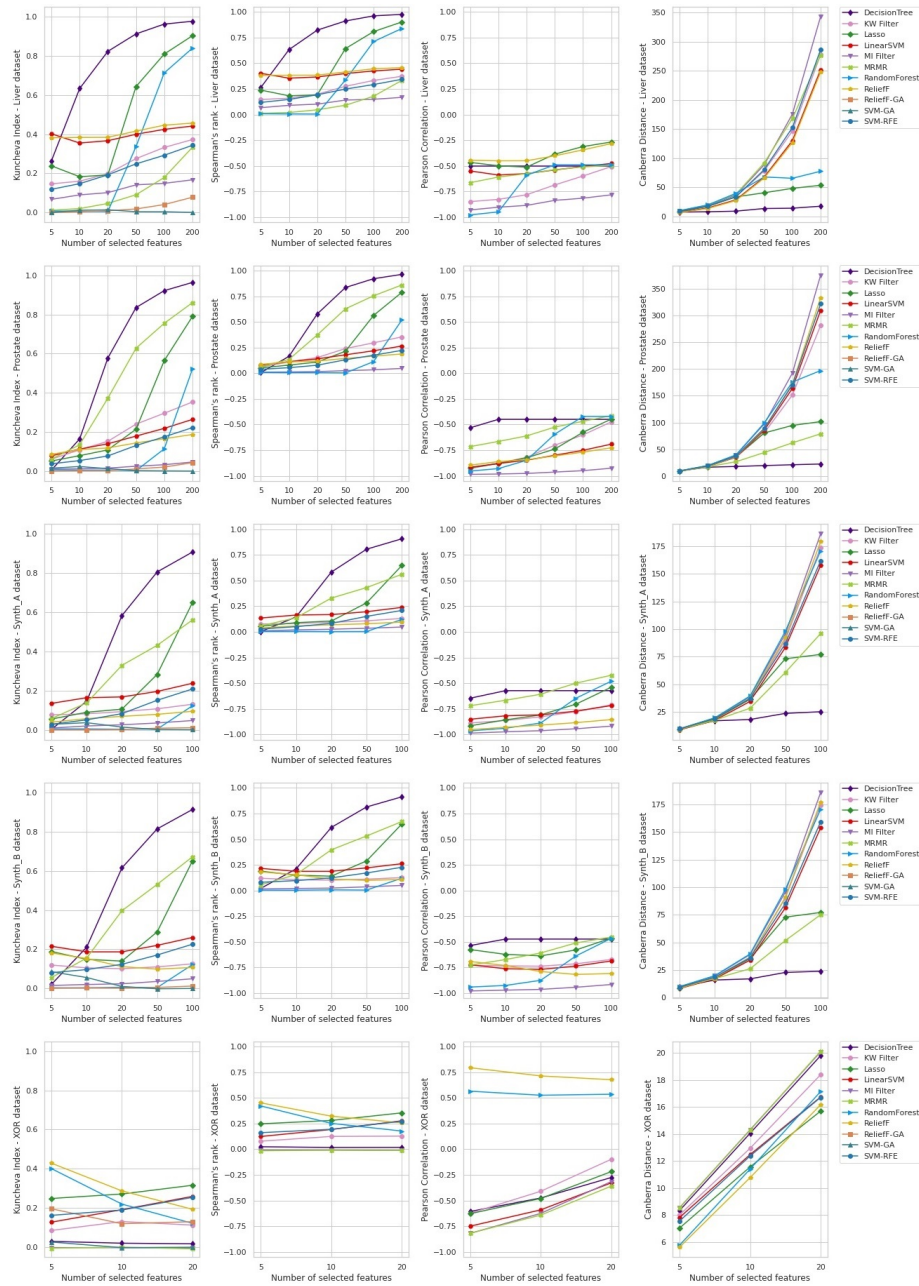


Figure 2: Stability results obtained for kuncheva index, spearman ρ , pearson correlation and canberra distance metrics applied on all 5 datasets with small amounts of perturbation (90% sampling).



Figure 3: Reliability results obtained for kuncheva index, spearman ρ , pearson correlation and canberra distance metrics applied on all 5 datasets.

