Report on E01 PHM08-train CLF-navarmn

Table 1: Results from average metrics of overall classes: Accuracy (Acc), Sensitivity (Sen), Specificity (Spc), F-score (Fsc) obtained from a extractors Fourier, HOS and SCM, combined with classifiers MLP, SVM and Bayes.

Classifier	Acc - Train (%)	Acc (%) - Test	**?** - DBN
KNN	69.71±0.34	55.18±1.87	
Random Fores	98.51±1.06	58.01±1.72	
Gaussian Naive-Bayes	61.87±0.23	61.55±2.13	
Gaussian Linear discriminant	62.42±1.06	62.35±1.25	
Gaussian Quadratic discriminant	38.95±9.71	39.39±10.07	
Perceptron - LMS	45.61±7.07	45.07±6.98	
Perceptron - SGD	56.83±3.44	56.30±3.73	
MLP	63.18±0.29	62.70±1.45	
SVM-RBF			

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Table 2: Results from average metrics of overall classes: Accuracy (Acc), Sensitivity (Sen), Specificity (Spc), F-score (Fsc) obtained from a extractors Fourier, HOS and SCM, combined with classifiers MLP, SVM and Bayes.

Classifier	Acc (%)	Sen (%)	Spc (%)	Fsc (%)
Fourier				
MLP	**84.48±2.65**	84.48±2.65	97.01±0.59	84.48±2.65
SVM	83.94±1.06	51.31±3.58	91.42±0.59	55.04±2.57
Bayes	77.30±0.63	77.47±1.13	95.33±0.16	77.39±0.81
HOS				
MLP	83.54±1.42	83.54±2.31	96.82±0.34	83.54±1.57
SVM	**89.60±0.52**	76.79±1.35	95.43±0.34	77.08±1.24
Bayes	78.96±0.64	78.96±0.64	95.75±0.16	78.96±0.64
SCM				
MLP	40.93±5.58	40.93±7.97	80.61±3.56	40.93±4.75
SVM	**89.14±0.74**	64.53±2.52	93.13±0.53	62.87±3.32
Bayes	54.97±1.00	55.03±1.05	88.00±0.41	55.03±1.00

Table 3: Results of an average accuracy rate comparison between different generator operational states (Classes), over the features extraction methods Fourier, HOS, and SCM.

Class	Fourier		
	MLP	SVM	Bayes
Normal	**99.98±0.11**	80.87±2.27	99.14±0.33
HI-1	73.51±12.26	76.34±1.82	62.94±3.27
HI-2	66.00±8.74	80.26±0.75	54.11±3.28
HI-3	94.05±3.82	81.18±1.88	86.71±1.31
LI-1	58.94±12.36	83.36±2.99	39.49±5.91
LI-2	98.89±1.12	87.66±1.29	92.10±1.21
LI-3	100.00±0.00	97.96±0.17	100.00±0.00
Class	**HOS**		
	MLP	SVM	Bayes
Normal	63.93±1.24	81.17±3.30	59.24±4.49
HI-1	74.03±2.60	72.04±0.93	47.46±5.40
HI-2	98.11±1.39	78.10±0.90	96.24±0.77
HI-3	98.25±1.22	88.71±0.27	99.22±0.52
LI-1	80.39±1.71	84.16±1.03	63.23±2.54
LI-2	98.78±0.55	98.20±0.47	100.00±0.00
LI-3	96.88±0.33	99.20±0.53	97.37±0.67
Class	**SCM**		
	MLP	SVM	Bayes
Normal	51.59±0.57	77.66±2.12	49.03±3.97
HI-1	31.75±1.70	81.31±1.92	73.51±3.68
HI-2	50.00±0.80	92.63±1.55	10.38±.29
HI-3	46.03±1.09	97.30±0.63	50.12±2.10
LI-1	69.84±2.01	83.14±2.68	17.03±7.14
LI-2	64.29±0.95	97.66±0.96	90.35±1.20
LI-3	90.48±0.44	99.34±0.35	92.87±1.06

Table 4: Percentage average confusion matrix for **Fourier-MLP**. The highlights correspond to correct classifications and are also the accuracy rate of each class, while the other number are the misclassifications rates. The sum in each row correspond to 100%.

Labels	Predictions						
	Normal	HI-1	HI-2	HI-3	LI-1	LI-2	LI-3
Normal	**99.98%**	0.00%	0.01%	0.00%	0.00%	0.00%	0.00%
HI-1	0.93%	**73.50%**	4.41%	0.49%	19.25%	0.85%	0.53%
HI-2	1.84%	7.44%	**66%**	6.38%	14.12%	3.25%	0.95%
HI-3	0.12%	0.82%	3.26%	**94.04%**	1.00%	0.68%	0.04%
LI-1	1.09%	28.11%	8.84%	1.26%	**58.93%**	1.04%	0.69%
LI-2	0.02%	0.05%	0.25%	0.49%	0.14%	**98.88%**	0.15%
LI-3	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	**100%**