

Supplementary Information

Bearing Fault Diagnosis Method Based on RCMFDE-SPLR and Ocean Predator Algorithm Optimizing Support Vector Machine

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One Tables and Two Figure Included

Table S1. Analysis of fault recognition rate results under MPA-SVM for RCMFDE-SPLR of different data

method	Data1	Data2
	fs=12000Hz	fs=12000Hz
	1772r/min	1730r/min
	motor load 1	motor load 3
RCMFDE-SPLR	99.67%	100%
MPA-SVM		

	NOR	IR1	IR2	IR3	OR1	OR2	OR3	B1	B2	B3
NOR	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IR1	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IR2	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IR3	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
OR1	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
OR2	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00
OR3	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
B1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
B2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
B3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.97

Figure S1. Recognition rate confusion matrix under MPA-SVM for RCMFDE-SPLR of data

1.

	NOR	IR1	IR2	IR3	OR1	OR2	OR3	B1	B2	B3
NOR	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IR1	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IR2	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IR3	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
OR1	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
OR2	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00
OR3	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
B1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
B2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
B3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00

Figure S2. Recognition rate confusion matrix under MPA-SVM for RCMFDE-SPLR of data

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