

Contents

Certificate	ii
Acknowledgements	iii
Abstract	v
Contents	viii
List of Figures	xii
List of Tables	xiv
List of Abbreviations	xv
List of Symbols	xvii
1 Introduction	1
1.1 State of the Art	3
1.2 Research Contribution	5
1.3 Thesis Outline	6
2 Literature Review	9
2.1 Wavelet Decomposition Methods	13
2.2 Empirical Mode Decomposition Methods	19
2.3 Fractional Domain Methods	23
2.4 Cyclostationarity Based Methods	25
2.5 Order Tracking Methods	28

2.6	Summary	31
2.7	Gaps in Existing Research	32
3	Methodology	34
3.1	Research Objectives	35
3.2	Public Datasets	36
3.2.1	CWRU-2013	36
3.2.2	UOO-2018	37
3.3	In-house Experiments (BITS-2021)	38
3.3.1	Experimental Set-up	38
3.3.2	Bearing Under Test (BUT)	39
3.3.3	Sensors	39
3.3.4	Data Acquisition	40
3.3.5	Processing Hardware	41
3.4	Summary	41
4	Fractional Hilbert Transform Based Enveloping Techniques	42
4.1	Theoretical Background	44
4.1.1	Hilbert Transform	44
4.1.2	Fractional Enveloping	45
4.2	Selection of Fractional Enveloping Method	47
4.2.1	Kurtosis Maximisation	47
4.2.2	Spectral Feature Maximisation	48
4.3	Proposed Algorithm	50
4.4	Results and Discussion	50
4.4.1	Case 1: Inner Race fault (CWRU-2013)	51
4.4.1.1	Fast Kurtogram	51
4.4.1.2	Wavelet Transform	52
4.4.1.3	Autogram	53
4.4.1.4	Empirical Mode Decomposition (EMD)	54

4.4.1.5	Variational Mode Decomposition (VMD)	55
4.4.1.6	Fractional Enveloping	56
4.4.2	Case 2: Sound Signal (BITS-2021)	56
4.4.2.1	Fast Kurtogram	57
4.4.2.2	Wavelet Transform	57
4.4.2.3	Autogram	57
4.4.2.4	Empirical Mode Decomposition (EMD)	58
4.4.2.5	Variational Mode Decomposition (VMD)	58
4.4.2.6	Fractional Enveloping	59
4.4.3	Case 3: Rolling Element Fault (CWRU-2013)	60
4.4.3.1	Fast Kurtogram	60
4.4.3.2	Wavelet Transform	60
4.4.3.3	Autogram	61
4.4.3.4	Empirical Mode Decomposition (EMD)	62
4.4.3.5	Variational Mode Decomposition (VMD)	62
4.4.3.6	Fractional Enveloping	62
4.5	Conclusion	63
5	Cumulative Distribution Sharpness Profiling	64
5.1	Theoretical Background	66
5.1.1	Laplace Distribution	66
5.1.2	Normal-Laplace (NL) Distribution	67
5.1.3	Effect of Noise on CDS	68
5.2	Proposed Algorithm	70
5.3	Results	72
5.3.1	Cumulative Distribution Sharpness Profile	72
5.3.2	Inner race fault case	74
5.3.3	Outer race fault case	74
5.3.4	Rolling Element Fault	74

	xi
5.4 Conclusion	75
6 Fault Diagnosis Framework	78
6.1 Proposed Framework	79
6.1.1 Signal Processing	80
6.1.2 Multiple Time-Frequency Ridge Curves Extraction	81
6.1.3 Time-Frequency Features and Diagnosis	81
6.2 Results	83
6.2.1 CWRU-2013	88
6.2.2 UOO-2018	90
6.2.3 BITS-2021	91
6.3 Comparison of Computational Time	92
6.4 Conclusion	92
7 Conclusion and Future Scope	93
List of Publications	96
Brief Biography of the Candidate	98
Brief Biography of the Supervisor	99

List of Figures

1.1	Simplified schematic of a bearing condition monitoring system	4
1.2	Generalised block diagram of bearing fault diagnosis	5
1.3	Commonly used techniques in bearing fault diagnosis	6
1.4	Contribution of this research	7
2.1	Bearing fault diagnosis research trend	10
2.2	Evolution of signal representation techniques in bearing fault diagnosis	11
2.3	Evolution of signal enveloping techniques in bearing fault diagnosis	12
3.1	Experimental set-up of bearing fault diagnosis	38
4.1	Block diagram of Hilbert transform and its generalisations	45
4.2	Comparison of fractional enveloping methods for maximum kurtosis	48
4.3	Comparison of fractional enveloping methods for maximum kurtosis	49
4.4	Proposed fault diagnosis using FrFT	50
4.5	$\frac{1}{3}^{rd}$ tree structure of kurtogram method	51
4.6	Case 1 : Analysis using fast kurtogram	52
4.7	Case 1 : Analysis using wavelet transform	53
4.8	Case 1 : Analysis using Autogram	54
4.9	Case 1 : Analysis using Empirical Mode Decomposition	55
4.10	Case 1 : Analysis using Variational Mode Decomposition	55
4.11	Case 1 : Analysis using fractional enveloping	56
4.12	Case 2 : Analysis using fast kurtogram	57
4.13	Case 2 : Analysis using wavelet transform	58
4.14	Case 2 : Analysis using Autogram	58

4.15	Case 2 : Analysis using Empirical Mode Decomposition	59
4.16	Case 2 : Analysis using Variational Mode Decomposition	59
4.17	Case 2 : Analysis using fractional enveloping	59
4.18	Case 3 : Analysis using fast kurtogram	60
4.19	Case 3 : Analysis using wavelet transform	61
4.20	Case 3 : Analysis using Autogram	61
4.21	Case 3 : Analysis using Empirical Mode Decomposition	62
4.22	Case 3 : Analysis using Variational Mode Decomposition	62
4.23	Case 3 : Analysis using fractional enveloping	63
5.1	Laplace distribution fit of bearing signals	67
5.2	Effect of noise on distribution sharpness	69
5.3	Proposed cumulative distribution sharpness profiling	70
5.4	Effect of window type on CDSP	72
5.5	Importance of cumulative distribution sharpness profile	73
5.6	Inner race fault case	75
5.7	Outer race fault case	76
5.8	Rolling Element Fault	77
6.1	Proposed framework for diagnosis of bearing faults under constant as well as variable speed conditions.	79
6.2	Comparative analysis of results for bearing dataset CWRU-2013, Set 1 . . .	83
6.3	Comparative analysis of results for bearing dataset CWRU 2013, Set 2 . . .	84
6.4	Comparative analysis of results for bearing dataset UOO 2018	85
6.5	Comparative analysis of results for experiments at BITS 2021, Set 1 . . .	86
6.6	Comparative analysis of results for experiments at BITS 2021, Set 2 . . .	87

List of Tables

2.1	Review of wavelet analysis	15
2.2	Review of empirical mode and other decomposition methods	20
2.3	Review of fractional domain processing	24
2.4	Review of cyclostationarity analysis	27
2.5	Review of order tracking analysis	29
3.1	Specifications of Bearing Under Test	39
3.2	Specifications of the accelerometer	40
3.3	Specifications of the microphone	40
3.4	Specifications of the data acquisition card	41
4.1	Effect of mother wavelet	53

List of Abbreviations

FT	Fourier Transform
HT	Hilbert Transform
SES	Squared Envelope Spectrum
WT	Wavelet Transform
WPT	Wavelet Packet Transform
EMD	Empirical Mode Decomposition
EEMD	Ensemble Empirical Mode Decomposition
VMD	Variational Mode Decomposition
LMD	Local Mean Decomposition
MHF	Modified Hilbert Filter
FrFT	Fractional Fourier Transform
CM	Chirp Multiplication
MTFCE	Multiple Time Frequency Curves Extraction
CDS	Cumulative Distribution Sharpness
CDSP	Cumulative Distribution Sharpness Profiling
TFR	Time Frequency Representation
FCF	Fault Characteristics Frequency

CWRU-2013 Case Western Reserve University Bearing Fault Dataset

UOO-2018 University of Ottawa Bearing Fault Dataset

BITS-2021 Birla Institute of Technology & Science, Pilani Bearing Fault Dataset

List of Symbols

f_r	Rotational speed in Hz
f_{ir}	Fault characteristic frequency of inner raceway
f_{or}	Fault characteristic frequency of outer raceway
f_{re}	Fault characteristic frequency of rolling element
$x(t)$	Bearing signal
$\tilde{x}(t)$	Hilbert transform of a signal
$x_a(t)$	Analytic signal
q	Fractional parameter for fractional Fourier transform
P	Fractional parameter for modified Hilbert filter
α	Fractional parameter for chirp multiplication
$f(y)$	probability distribution function of signal y
μ	Arithmetic mean
σ	Standard Deviation
$F(x)$	Cumulative distribution function of signal x
Pr	Prominence
Co	Compliance



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