LIST OF SYMBOLS AND ABBREVIATIONS

APNN	-	Advanced Probabilistic Neural Network
n	-	Amount of data
AM1	-	Amplitude at level 1
AM2	-	Amplitude at level 2
AM3	-	Amplitude at level 3
AM4	-	Amplitude at level 4
AM5	-	Amplitude at level 5
NM	-	Amplitude peak corresponding to fundamental
A	-	Approximation Coefficient
AI	-	Artificial Intelligence
ANN	-	Artificial Neural Network
x_i	-	Average data
P	-	Average Power
COG	-	Center of Gravity
CPU	-	Central processing unit
z^*	-	Centre of the area
c_i	-	Centroid
∇E	-	Change in Error
Δw_{ij}	-	Change in weight
β	-	Constant
Db	-	Daubechies
Db2	-	Daubechies level 2
Db4	-	Daubechies level 4
Db	-	Daubechies wavelet
db	-	Decibels
D	-	Detail Coefficient
X_i	-	Detail coefficients
DFT	-	Discrete Fourier Transforms

EMC	-	Electromagnetic Compatibility
E1	-	Energy at level 1
E2	-	Energy at level 2
E3	-	Energy at level 3
E4	-	Energy at level 4
E5	-	Energy at level 5
E	-	Error
FFT	-	Fast Fourier Transforms
FFML	-	Feed Forward Multilayer Neural Network
d5	-	Fifth decomposed levels
d1	-	First decomposed levels
$IW_{1,1}$	-	First layer input weight
f	-	Fittness function
f(t)	-	Function
FUND	-	Fundamental
FN	-	Fundamental Frequency zone
FL	-	Fuzzy Logic
gaussmf	-	Gaussian membership function
GRNN	-	Generalized Regression Neural Networks
gbellmf	-	Generalzed bell membership function
C7	-	Harmonic distortion
S6	-	Harmonics
S18	-	Harmonics with fluctuation and momentary interruption
HF	-	High Frequency disturbance zone
HO	-	High Outage
g(n)	-	High pass filter
HP	-	High Peak
HOS	-	Higher Order Statistics
HV	-	Higher value amplitude peak
W	-	Inertia weight factor

X[n]	-	Input signal
LN	-	Large Negative
LP	-	Large Positive
η	-	Learning rate
LVQ	-	Learning Vector Quantization
LF	-	Low Frequency Disturbance zone
LO	-	Low outage
h(n)	-	Low pass filter
LP	-	Low Peak
LV	-	Lower amplitude value peak
MATLAB	-	Matrix Laboratory
w_{max}	-	Maximum weight
MF	-	Membership Function
c	-	Membership function centre
μA	-	Membership function of set A
σ	-	Membership function width
μs	-	Micro second
msec	-	Milli second
w_{min}	-	Minimum weight
C4	-	Momentary interruption
S4	-	Momentary interruption for neural networks
S10	-	Momentary interruption with harmonics
α	-	Momentum
$\psi(t)$	-	Mother wavelet
ML	-	Much Lower value amplitude peak
MRA	-	Multi-Resolution Analysis
ns	-	Nano second
net	-	Network
O	-	Neurons output
W	-	Neurons weight
newrbf	-	New radial basis function

C1	-	Normal
S1	-	Normal for neural network applications
K	-	Number of classes of input data
S1	-	Number of competitive neurons
R	-	Number of elements in input vector
Q	-	Number of input/target pairs
S2	-	Number of linear neurons
S	-	Number of neurons in layer
1-D	-	One Dimension
C6	-	Outage
y1[k]	-	Output of high pass filter
y2[k]	-	Output of low pass filter
PSO	-	Particle Swarm Optimization
p.u	-	Per unit
%	-	Percentage
$x_i(t)$	-	Position of the particle
PQ	-	Power Quality
PNN	-	Probabilistic Neural Network
C2	-	Pure sag
S2	-	Pure sag for neural network applications
C3	-	Pure swell
S3	-	Pure swell for neural network applications
radbas	-	Radial basis
RBFNN	-	Radial Basis Function Neural Network
A1	-	Sag of orientation 1
A10	-	Sag of orientation 10
A2	-	Sag of orientation 2
A3	-	Sag of orientation 3
A4	-	Sag of orientation 4
A5	-	Sag of orientation 5
A6	-	Sag of orientation 6

A7	-	Sag of orientation 7
A8	-	Sag of orientation 8
A9	-	Sag of orientation 9
S12	-	Sag with fluctuation
S19	-	Sag with fluctuation, momentary interruption and swell
S20	-	Sag with fluctuation, momentary interruption, swell and harmonics
S8	-	Sag with harmonics
S14	-	Sag with momentary interruption
S17	-	Sag with swell and harmonics
S16	-	Sag with swell and momentary interruption
I_n	-	Scalar sequence
a	-	Scale
s	-	Seconds
SOM	-	Self Organizing Map
STFT	-	Short-Time Fourier Transforms
Sigmf	-	Sigmoidal membership function
$\varphi_n(t)$	-	Signal sequence
$\varphi_n{}^*(t)$	-	Signal sequence complex conjugation
SNR	-	Signal to Noise Ratio
SL1	-	Slope at level 1
SL2	-	Slope at level 2
SL3	-	Slope at level 3
SN	-	Slope Negative
SP	-	Slope Positive
SZ	-	Slope Zero
SN	-	Small Negative
SP	-	Small Positive
SVM	-	Support Vector Machine
S13	-	Swell with fluctuation