NOMENCLATURE AND ACRONYMS

List of Roman symbols:

d^s	Direct axes component to stator reference frame
$e(k)$	Error
$e^{-j\theta}$	Inverse vector rotational operator
$e^{j\theta}$	Vector rotational operator
E_t	Error measure at any time t
i_{sa}, i_{sb}, i_{sc}	Instantaneous rotor phase current in rotor ref frame
i_{sA}, i_{sB}, i_{sC}	Instantaneous stator phase current in stator ref frame
J	Rotor inertia
K_i	Integral gain
K_p	Proportional gain
L_m	Mutual inductance
L_r	Rotor inductance
L_s	Stator inductance
m	Modulation index
M	Coefficient of mutual induction
p	Differential operator
P	No. of pair of poles
s	Laplacian operator

T_e	Electromagnetic torque
T_L	Load torque
V_{ab}, V_{bc}, V_{ca}	Line voltages
V_{ds}^{s}, V_{qs}^{s}	Direct & quadrature axes voltage to stator ref frame
V_m	Vector magnitude peak value of voltage
V_o^s	Zero sequence voltage component
V_{sa}, V_{sb}, V_{sc}	Instantaneous rotor phase voltages in rotor ref frame
V_{sA}, V_{sB}, V_{sC}	Instantaneous stator phase voltages in stator ref frame

List of subscripts:

A,B,C	Stator phase A, phase B, phase C
a, b, c,	rotor phase a, phase b, phase c
d	Direct axes
q	Quadrature axes
0	Zero sequence
x	Real axes in stator flux ref frame
y	Imaginary axes in stator flux ref frame
s	Stator
r	Rotor

List of superscripts:

s	Stator reference frame
r	Stator reference frame

List of Greek symbols:

$\vee$	Fuzzy max operator

$\wedge$	Fuzzy min operator
$\Delta e(k)$	Change in error
Δ	Change in a parameter
η	Learning rate parameter
$\forall$	For all
μ	Membership function
ω	Speed
ω_e	Electrical speed
ω_m	Mechanical speed
ω_r	Reference speed
$\prod$	Product operator
$\psi_{ra}, \psi_{rb}, \psi_{rc}$	rotor phase fluxes in wbs
$\psi_{sA}, \psi_{sB}, \psi_{sC}$	stator phase fluxes in wbs
$\sum$	Sum operator

List of Acronyms/Abbreviations:

AC	Alternating Current
AI	Artificial Intelligence
ANFIS	Adaptive Neuro Fuzzy Inference System
ANN	Artificial Neural Networks
BP	Back Propagation
CG	Center of Gravity
CT	Continuous Time
DC	Direct Current
DOF	Degree Of Freedom
DSC	Direct Self Control
DSP	Digital Signal Processor
DT	Discrete Time
DTANFC	Direct Torque Adaptive Neuro Fuzzy Controller
DTC	Direct Torque Control
FGRNN	Fuzzy based General Regression Neural Network
FIS	Fuzzy Inference System
FKBC	Fuzzy Knowledge Based Controller
FLC	Fuzzy Logic Controller
FNN	Fuzzy Neural Networks
FOC	Field Oriented Control
FSMC	Fuzzy Sliding Mode Controller
FSTPIC	Fuzzy based Self Tuning PI controller

IM	Induction Motor
Matlab	Matrix Laboratory
MF	Membership Function
MRAC	Model Reference Adaptive Control
NI	National Instruments
NN	Neural Network
PD	Proportional Derivative
PI	Proportional Integrator
PID	Proportional Integral Derivative
PWM	Pulse Width Modulation
RBFNN	Radial Bessel Function Neural Network
RLS	Recursive Least Square
RPM	Revolution Per Minute
SCIM	Squirrel Cage Induction Motor
SMC	Sliding Mode Control
SMC	Sliding Mode Controller
SVPWM	Sliding Vector Pulse Width Modulation
TS	Takagi Sugeno
V_{LL}	Line to Line Voltage
V_{LN}	Line to Neutral Voltage
VGPI	Variable Gain PI