Title:	A Fuzzy Logic Controller with Tuning Output Scaling Factor for Induction Motor Control Taking Core Loss into Account
Author(s) Name:	Mohammad Abdul Mannan, T. Murata and J. Tamura
Contact Email(s):	mdmannan@aiub.edu
Published Journal Name:	International Journal of Intelligent Systems and Applications in Engineering
Type of Publication:	Journal
Volume:	2 Issue 3
Publisher:	IJISAE
Publication Date:	September 2014
ISSN:	2147-6799
URL:	https://ijisae.org/index.php/IJISAE/article/view/87
Other Related Info.:	Page 46-50

Citation: Mohammad Abdul Mannan, T. Murata and J. Tamura, "A Fuzzy Logic Controller with Tuning Output Scaling Factor for Induction Motor Control Taking Core Loss into Account", International Journal of Intelligent Systems and Applications in Engineering, Vol. 2, No. 3, pp. 46-50, 2014.

Abstract:

This paper presents a design of a fuzzy logic controller (FLC) with tuning output scaling factor for speed control of indirect field oriented induction motor (IM) taking core loss into account. The variation of output scaling factor of FLC depends on the normalized output of FLC. Firstly the speed control of IM taking core loss into account is presented by using FLC with fixed scaling factors (FLC-FSF). Secondly the speed controller based on suggested FLC with tuning output scaling factor (FLC-TOSF) is proposed. The performance of the proposed FLC-TOSF for speed control of IM are investigated and compared to those obtained using FLC-SFS at different operating conditions and variation of parameters. A comparison of simulation results shows that the convergence of actual speed to reference speed is faster by using the proposed FLC-TOSF.

Keywords: Core loss, field oriented induction motor, fuzzy logic controller, fuzzy logic controller with tuning output scaling factor