AIUB DSpace Publication Details

Title:	Design and Simulation of Artificial Neural Network (ANN) Based Speed Control for an Induction Motor Taking Core Loss and Stray Load Losses into Account
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Published Journal Name:	Journal of Control & Instrumentation
Type of Publication:	Journal
Volume:	6 Issue 3
Publisher:	STM Journals
Publication Date:	2015
ISSN:	2229 - 6972
URL:	https://stmjournals.com/index.php?journal=JoCI&page=article&op=view&path%5B%5D=6415
Other Related Info.:	Page 13-22

Citation: Md. Rifat Hazari, Effat Jahan, Mohammad Abdul Mannan, Junji Tamura, "Design and Simulation of Artificial Neural Network (ANN) Based Speed Control for an Induction Motor Taking Core Loss and Stray Load Losses into Account",

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Abstract:

Indirect field oriented control (FOC) scheme has been preferred due to its superior performance for induction motor (IM). Core loss (CL) and stray load losses (SLLs) are generally neglected in the mathematical model of IM. But it should be considered in the mathematical model of IM to precisely control the torque and flux. Conventional PI controller has overshooting effect at the transient period of the speed response curve. Artificial neural network (ANN) is suitable as a controller for nonlinear systems such as IM. In this paper, an ANN-based speed controller is proposed to control the speed of IM. Simulations analyses have been performed using MATLAB/SIMULINK. The results showed better performance from the proposed controller to control the speed of IM at the transient and steady-state condition without any overshooting effect as compared to the PI controller.

Keywords: Induction motor, field oriented control, artificial neural network controller, core loss, stray load loss

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