# AIUB DSpace Publication Details

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**Abstract:**

Most of the controllers of IM (induction motor) for industrial applications have been designed based on PI controller without consideration of CL (core loss) and SLL (stray load loss). To get the precise performances of torque as well as rotor speed and flux, the above mentioned losses should be considered. Conventional PI controller has overshoot effect at the transient period of the speed response curve. On the other hand, fuzzy logic and ANN (artificial neural network) based controllers can minimize the overshoot effect at the transient period because they have the abilities to deal with the nonlinear systems. In this paper, a comparative analysis is done between PI, fuzzy logic and ANN based speed controllers to find the suitable control strategy for IM with consideration of CL and SLL. The simulation analysis is done by using Matlab/Simulink software. The simulation results show that the fuzzy logic based speed controller gives better responses than ANN and conventional PI based speed controllers in terms of rotor speed, electromagnetic torque and rotor flux of IM.

**Key words**: Core loss, stray load loss, PI controller, fuzzy logic controller, artificial neural network controller.