

Fuzzy Logic in Parameter Estimation of Induction Motor

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Abstract

Rotor parameter identification is vital for generating proper control signals in induction motor drive systems. Conventional techniques are prevailing but fuzzy logic is unique as it can handle numerical data and linguistic knowledge simultaneously. A fuzzy logic based parameter identification technique has been developed considering an equivalent circuit of induction motor. It is based on estimating the actual slip and torque online, comparing it with the slip-torque characteristics of the induction motor, determining the deviation and thereby estimating the parameters of the induction motor. The fuzzy logic based estimator has been tested for several deviated slip torque characteristics and the results are found in conformation with the calculated values. The parameter variation thus estimated can be used to calculate the rotor inductance and stator resistance and accordingly generate appropriate control signals in induction motor drive systems.