

Cascaded Neural Network for Internal Temperature Forecasting in Induction Motor

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Abstract : In this study, two systems were created to predict interior temperature in induction motor. One of them consisted of a simple ANN model which has two layers, ten input parameters and one output parameter. The other one consisted of eight ANN models connected each other as cascaded. Cascaded ANN system has 17 inputs. Main reason of cascaded system being used in this study is to accomplish more accurate estimation by increasing inputs in the ANN system. Cascaded ANN system is compared with simple conventional ANN model to prove mentioned advantages. Dataset was obtained from experimental applications. Small part of the dataset was used to obtain more understandable graphs. Number of data is 329. 30% of the data was used for testing and validation. Test data and validation data were determined for each ANN model separately and reliability of each model was tested. As a result of this study, it has been understood that the cascaded ANN system produced more accurate estimates than conventional ANN model.

Keywords : cascaded neural network, internal temperature, inverter, three-phase induction motor

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