SRM drives are the upcoming drives nowadays as these have many advantages such as simplicity, low manufacturing and operating costs, fault tolerance, high torque/inertia ratio and efficiency. The estimation of SRM drive parameters is an important consideration in their field. Many methods are available for this. However the estimation of the optimal parameters is normally preferred. Making use of neural networks is one of the best ways to achieve this. This paper proposes an unsupervised learning method i.e., Kohonen’s Self Organizing Feature Map method of estimation of SRM drives. Since the method makes use of ‘winner takes all’ of a neuron, the values obtained by this, will be the optimal values. The drive is first simulated and the parameters obtained are used for training the ANN. The Unsupervised learning method is the Kohonen’s Self Organizing Feature Map method, which is used for the estimation of the SRM drive parameters. The parameters estimated are the currents and fluxes in the two axis.
Because of the unsupervised learning, it can be stated that the estimated values are the best or the optimal values. MATLAB/Simulink is used for the simulation and the results are shown.

Reference


Index Terms

Computer Science
Artificial Intelligence

Key words

Artificial Neural Network
d-q control
Epoch
Optimal Parameters Estimation of a Switched Reluctance Motor by Kohonen's Self Organizing Feature Map Method

Estimation
KSOFM
SRM
Optimal Parameters
Unsupervised Learning
Unit Vectors
Weight Matrix