

Abstract

Brewen S Abdel Kerem

Speed Control of a Switched Reluctance Motor using Artificial Neural Network Techniques

Switched reluctance motors (SRMs) have an intrinsic simplicity and low cost that makes them well suited to many applications. However, the motor has doubly salient structure and highly non-uniform torque and magnetization characteristic. Since it was hard to determine the accurate mathematical model of (SRM) .The Artificial Neural Networks (ANNs) solve the problem of non-linearity of SRM drive. It ensures fast, accurate, less overshoot and high precision dynamic response with perfect steady state performance. In the simulation analysis, this paper tests the (SRM) motor adopting two different control modes at starting process under full load torque with a reference speed of 2000 rpm, and the load disturbance under full load torque with a reference speed 2250 rpm. Simulation results show that speed control is better using (ANN) controller than using the (PID) controller. Matlab/Simulink tool is used for the dynamic simulation study.