Presenting a Model for Making a Comparison of Bayesian Networks and Decision Tree Algorithms in Intrusion Detection Systems Based on Data Mining

Original Research, C1

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PII: S232251141400001-3
ABSTRACT:

By development of information technology, network security is considered as one of the main issues and has great importance today. In this paper, we propose an intrusion detection system using the J48 algorithm. The experimental results of simulation suggest that J48 algorithm has the highest precision of 85.49% for the intrusion detection system.

Key words: abnormal packet, Bayesian networks, data mining, intrusion detection systems, normal packet.

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Performance Comparison of STATCOM & SVC in Reactive Power Control Strategy For Wind Farm

Original Research, C2
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ABSTRACT:

In this paper the wind farm reactive power control strategy introduced by the STATCOM and SVC. First, the STATCOM system principle and components are explained and then the system is simulated by the MATLAB software. Also, the simulation results of the STATCOM and SVC system in this paper are compared. The obtained results for the comparison of the STATCOM and SVC show that the STATCOM system is more useful to control the reactive power in the wind farm.

Key words: Doubly-Fed Induction Generator (DFIG), Wind Farm, STATCOM, SVC.
Performance Evaluation of Three-Phase Induction Motor Fed by unbalanced voltage Combined with Over- or Under Voltage Using Finite Element Method

Original Research, C3

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ABSTRACT:
Unbalanced voltages can exist anywhere in a three-phase power distribution system. Thus, investigation of their effects is necessary. In this paper, two novel indicators have been proposed for evaluating the performance of the induction motor fed by unbalanced voltage. The first indicator is the ratio of the voltage magnitude of the phase with the highest voltage magnitude to the voltage magnitude of the phase with the lowest voltage magnitude. The second indicator is the voltage unbalance factor (CVUF) that consists of voltage magnitude and angle. The simulation results show the validity and efficiency of the proposed indicators.

Key words: CVUF, Efficiency, Induction Motor, Losses, Torque.

Conceptual comparison of Line-Start Permanent Magnet Synchronous and Induction Machines for Line-fed of different conditions

Original Research, C4

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ABSTRACT:
This study presents a comparative analysis of a synchronous and an induction motor sharing the same electrical circuitry. The results show a better steady-state response of an LSPMSM rather than its IM, if its synchronized problems could be obviated.

Key words: Line-Start Permanent Magnet Synchronous Motor (LSPMSM), Induction Motor (IM), Line-fed, Voltage sag conditions.
Voltage Sag Evaluation during Induction Motors Starting Using Artificial Neural Network

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ABSTRACT:
One of the most important concerns in electrical systems is to deliver energy to the consumers with high power quality. This requirement is becoming more essential with the widely use of electronic control systems. The voltage sags are one of the main disturbances that affect the power quality in electrical systems. In this paper, artificial neural network (ANN) is used for evaluating of voltage sag magnitude and duration. The main advantages of using ANN are its ability to learn and model complex non-linear functions. In this work, both multilayer perceptron (MLP) and radial basis function (RBF) structures have been analyzed. Six learning algorithms, backpropagation (BP), delta-bar-delta (DBD), extended delta-bar-delta (EDBD), directed random search (DRS), quick propagation (QP), and levenberg marquardt (LM) were used to train the MLP. The simulation results show that proposed technique can estimate the voltage sag characteristics with good accuracy. Also, it is shown that the LM and EDBD algorithms present better performance for evaluating of voltage sag magnitude and duration.

Key words: Induction motors, multilayer perceptron, motor cable, radial basis function, voltage sag.