

Transformer Fault Diagnostic Predicting Model Using Support Vector Machine with Gradient Decent Optimization

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Abstract : The power transformer which is responsible for the voltage transformation is of great relevance in the power system and oil-immersed transformer is widely used all over the world. A prompt and proper maintenance of the transformer is of utmost importance. The dissolved gases content in power transformer, oil is of enormous importance in detecting incipient fault of the transformer. There is a need for accurate prediction of the incipient fault in transformer oil in order to facilitate the prompt maintenance and reducing the cost and error minimization. Study on fault prediction and diagnostic has been the center of many researchers and many previous works have been reported on the use of artificial intelligence to predict incipient failure of transformer faults. In this study machine learning technique was employed by using gradient decent algorithms and Support Vector Machine (SVM) in predicting incipient fault diagnosis of transformer. The method focuses on creating a system that improves its performance on previous result and historical data. The system design approach is basically in two phases; training and testing phase. The gradient decent algorithm is trained with a training dataset while the learned algorithm is applied to a set of new data. This two dataset is used to prove the accuracy of the proposed model. In this study a transformer fault diagnostic model based on Support Vector Machine (SVM) and gradient decent algorithms has been presented with a satisfactory diagnostic capability with high percentage in predicting incipient failure of transformer faults than existing diagnostic methods.

Keywords : diagnostic model, gradient decent, machine learning, support vector machine (SVM), transformer fault

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