عنوان مقاله:

Fast Prediction of Power System Dynamic Response Using Intelligent Techniques based on WAMS Data

محل انتشار:

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خلاصه مقاله:

Each This paper presents a two-step technique for online evaluation of power system dynamic behavior based on wide measurements and data mining methods. Most of the investigated intelligence methods in the literature have been focused on predicting transient instability condition to estimate desire decision without evaluating dynamic behavior of oscillating generators unstable events. This paper applies the conventional binary classification technique for identifying transient instability status in the first step, and then in the second step provides a new method for predicting dynamic behavior of synchronous generators in the unstable cases. The proposed method firstly implements the clustering technique to specify dynamic behavior schema of synchronous generators for unstable conditions, and then implements several multi classification artificial intelligence techniques including multiobjective support vector machine, decision tree and modified decision tree to evaluate specified unstable responses. Theproposed method is examined on a large scale multi area power system. Simulation results demonstrate a high accuracy to predict system dynamic response at the both proposed steps

کلمات کلیدی:

Dynamic Response, Transient Instability, Prediction, Data Mining, Decision Tree,Support Vector Machine, hierarchical clustering algorithm.