

Article Summary

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Article Summary

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Article Summary

The article discusses the least squares support vector machines (LS-SVM) being investigated in an interconnected power system two-area which are based on automatic generation control working with a double served induction generator wind turbines. It starts by elaborating on the source of deviation of frequencies which is a result of sudden load change in an interconnected power system and tie-line powers (Sharma et al., 2014). With all this discussion, there is a proposal of a non-linear LS-SVM based AGC regulator for non-linear power and huge linked systems all involving conventional generators and DFIG based wind turbines. These results in investigating a power system model made up of two-area interconnected power system. On the other hand, the two-area interconnected power system consists of DFIG wind turbines and non-reheat thermal turbines.

During the investigation problem of regression comes in evaluating the function needed in approximating mapping from a particular input domain to a real number. Consequently, the study goes ahead to utilize the LS-SVM interfaced with standard MATLAB software to estimate function. Again, not only that is enough but the study goes further to conduct a DFIG modeling in the start of a load disturbance. To get the results, several cases are conducted. The first case entails testing the dynamic performance of power systems using the nominal parameters. Secondly, evaluation of the AGC regulator is conducted through application of lower bound temperatures (Sharma et al., 2014). After the evaluation, it is discovered that using the robust control technique accommodates huge parametric uncertainties and models errors into consideration. Also, the LS-SVM AGC regulators are found to be more effective in terms of performance compared to the conventional PI and MLP NNs regulators under wide range parametric uncertainties. Besides, the LS-SVM AGC regulators are recommended since they

require less training algorithm and thus no essence of investigating the hidden layer in designing regulators.

Reference

Sharma, G., Niazi, K. R., & Bansal, R. C. (2014). LS-SVM based AGC of power system with dynamic participation from DFIG based wind turbines.

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Gulshan Sharma, K. R. Niazi, Ibraheem. "Application of LS-SVM technique based on robust control strategy to AGC of power system", 2014 International Conference on Advances in Engineering & Technology Research (ICAETR - 2014), 2014

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