Hilbert Transform based Fuzzy Expert System for Diagnosing and Classifying Power Quality Disturbances

Abstract

This paper presents a new technique for diagnosis and classification of power quality disturbances. The proposed method applies Hilbert transform to analyze the distorted voltage waveforms and then extract their features. The distorted voltage waveforms are generated by Matlab simulink on the test system. The extracted input features such as standard deviation and variances are given as inputs to the fuzzy-expert system that uses some rules to classify the Power Quality disturbances. Fuzzy classifier has been constructed to classify both the single and combined form power quality disturbances. The results clearly show that the proposed method has the ability to diagnose and classify Power Quality problems. The results obtained by the proposed method are validated by comparing them against Hilbert Transform based neural classifiers.

References

1. Shyh-Jier Huang, Cheng-Tao Hsieh and Ching-Lien Huang, "Application of wavelets to
classify power system disturbances”, Electric power systems research, 1998.


**Index Terms**

- Computer Science
- Fuzzy Systems

**Keywords**

Power quality, Power quality disturbances, Hilbert transforms, Fuzzy-expert system.