

Faults Diagnosis by Thresholding and Decision tree with Neuro-Fuzzy System

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Abstract : The monitoring of industrial processes is required to ensure operating conditions of industrial systems through automatic detection and isolation of faults. This paper proposes a method of fault diagnosis based on a neuro-fuzzy hybrid structure. This hybrid structure combines the selection of threshold and decision tree. The validation of this method is obtained with the DAMADICS benchmark. In the first phase of the method, a model will be constructed that represents the normal state of the system to fault detection. Signatures of the faults are obtained with residuals analysis and selection of appropriate thresholds. These signatures provide groups of non-separable faults. In the second phase, we build faulty models to see the flaws in the system that cannot be isolated in the first phase. In the latest phase we construct the tree that isolates these faults.

Keywords : decision tree, residuals analysis, ANFIS, fault diagnosis

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