

## Evaluation of Diagnosis Performance Based on Pairwise Model Construction and Filtered Data

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**Abstract :** It is quite important to utilize right time and intelligent production monitoring and diagnosis of industrial processes in terms of quality and safety issues. When compared with monitoring task, fault diagnosis represents the task of finding process variables responsible causing a specific fault in the process. It can be helpful to process operators who should investigate and eliminate root causes more effectively and efficiently. This work focused on the active use of combining a nonlinear statistical technique with a preprocessing method in order to implement practical real-time fault identification schemes for data-rich cases. To compare its performance to existing identification schemes, a case study on a benchmark process was performed in several scenarios. The results showed that the proposed fault identification scheme produced more reliable diagnosis results than linear methods. In addition, the use of the filtering step improved the identification results for the complicated processes with massive data sets.

**Keywords :** diagnosis, filtering, nonlinear statistical techniques, process monitoring

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