

## Intelligent Process Data Mining for Monitoring for Fault-Free Operation of Industrial Processes

**Authors :** Hyun-Woo Cho

**Abstract :** The real-time fault monitoring and diagnosis of large scale production processes is helpful and necessary in order to operate industrial process safely and efficiently producing good final product quality. Unusual and abnormal events of the process may have a serious impact on the process such as malfunctions or breakdowns. This work try to utilize process measurement data obtained in an on-line basis for the safe and some fault-free operation of industrial processes. To this end, this work evaluated the proposed intelligent process data monitoring framework based on a simulation process. The monitoring scheme extracts the fault pattern in the reduced space for the reliable data representation. Moreover, this work shows the results of using linear and nonlinear techniques for the monitoring purpose. It has shown that the nonlinear technique produced more reliable monitoring results and outperforms linear methods. The adoption of the qualitative monitoring model helps to reduce the sensitivity of the fault pattern to noise.

**Keywords :** process data, data mining, process operation, real-time monitoring

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