Industrial Process Mining Based on Data Pattern Modeling and Nonlinear Analysis

Authors : Hyun-Woo Cho

Abstract : Unexpected events may occur with serious impacts on industrial process. This work utilizes a data representation technique to model and to analyze process data pattern for the purpose of diagnosis. In this work, the use of triangular representation of process data is evaluated using simulation process. Furthermore, the effect of using different pre-treatment techniques based on such as linear or nonlinear reduced spaces was compared. This work extracted the fault pattern in the reduced space, not in the original data space. The results have shown that the non-linear technique based diagnosis method produced more reliable results and outperforms linear method.