

Fault Diagnosis of an Chemical Plant with Multivariate Analysis and Machine Learning Method

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Fault detection and diagnosis in chemical industry is very crucial. Continuous fault status in a chemical industry may cause a very fatal damage to its operation, but adequate use of fault detection and diagnosis can help minimize the risk and maximize the product quality of chemical plant. Over the years, various method of fault diagnosis and detection have been introduced. With multivariate analysis, such as PCA or PLS, data dimension can be reduced. In lower dimension space, a characteristic of fault data can be identified and the characteristic of fault data can be trained with machine learning methods. In this work, multivariate data was collected from actual operating plant and a method known to be highly accurate, Dynamic Principal Component Analysis, and trained under lower dimension space with machine learning method, Support Vector Machine, proved to be a very effective tool for fault detection and diagnosis