

Development of an Accident Diagnosis System
using a Dynamic Neural Network
for Nuclear Power Plants

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Abstract

In this work, an accident diagnosis system using the dynamic neural network is developed. In order to help the plant operators to quickly identify the problem, perform diagnosis and initiate recovery actions ensuring the safety of the plant, many operator support system and accident diagnosis systems have been developed. Neural networks have been recognized as a good method to implement an accident diagnosis system. However, conventional accident diagnosis systems that used neural networks did not consider a time factor sufficiently. If the neural network could be trained according to time, it is possible to perform more efficient and detailed accidents analysis. Therefore, this work suggests a dynamic neural network which has different features from existing dynamic neural networks. And a simple accident diagnosis system is implemented in order to validate the dynamic neural network. After training of the prototype, several accident diagnoses were performed. The results show that the prototype can detect the accidents correctly with good performances.