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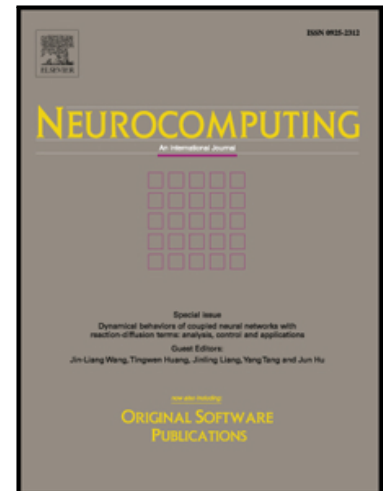
Maiying Zhong, Ting Xue, Steven X. Ding

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A Survey on Model-based Fault Diagnosis for Linear Discrete Time-Varying Systems[☆]

Maiying Zhong^{a,*}, Ting Xue^b, Steven X. Ding^b

^a*College of Electrical Engineering and Automation, Shandong University of Science and Technology, Qingdao 266590, China*

^b*Institute for Automatic Control and Complex Systems, University of Duisburg-Essen, Duisburg 47057, Germany*

Abstract

To meet the rising demands for safety and reliability of modern industrial control systems, the model-based fault diagnosis problem has attracted much attention in the past few decades both from the academic communities and in practical applications. Among the rich body of literature, the majority of the results are proposed for linear time invariant systems despite the fact that most practical processes are inherently time-varying by nature and discretized for online implementations. Recently, with the ever-increasing system complexity and scale, the model-based fault diagnosis issue for linear discrete time-varying (LDTV) systems has become a hot research topic of both theoretical importance and practical significance, and a great number of results have been reported with many open problems deserving further investigation. To reflect the latest progress in this emerging research branch, this survey aims to provide a timely reference to readers interested in this topic. More specifically, in this survey, the techniques for model-based fault diagnosis for LDTV systems are classified into observer-based methods, parity space-based approaches and parameter estimation schemes, which constitute the three main parts of this survey. The

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*Corresponding author

Email addresses: myzhong@buaa.edu.cn (Maiying Zhong), ting.xue@uni-due.de (Ting Xue), steven.ding@uni-due.de (Steven X. Ding)

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