Mathematical Problems in Engineering

Special Issue on

Fault Detection, Isolation, Estimation, and Accommodation of Dynamic Systems

CALL FOR PAPERS

Due to the increasing security and reliability demand of modern control systems, the study on fault diagnosis and fault tolerant control of dynamic systems has become a hot topic. In general, there are three different types of tasks or layers in the area of fault diagnosis: (1) fault detection, (2) fault isolation, and (3) fault estimation. Fault detection consists of designing a residual generator that produces a residual signal enabling one to make a binary decision as to whether a fault occurred. Fault isolation is to determine the localization of different faults. Fault estimation is utilized to determine online the magnitude of the fault. Fault diagnosis is very important because it can provide accurate fault information. Fault accommodation belongs to active fault tolerant control and is one of the effective methods to enhance system stability and reliability.

The overall aim of this special issue is to provide an up-to-date overview of the research directions and advanced methodologies in fault diagnosis and accommodation. The papers in this special issue are of particular interest and are devoted to the development of fault detection, fault isolation, fault estimation, and fault accommodation of dynamical systems, including continuous-time/discrete-time linear systems, time-delay systems, fuzzy systems, multiagent systems, and stochastic system.

Potential topics include, but are not limited to:

- Fault modeling of dynamic systems
- Fault detection of closed-loop systems
- Fault isolation for multiple faults
- Robust fault diagnosis for incipient faults
- Analysis and design of fault estimation observer
- Fault accommodation and reconfiguration control
- Applications of fault diagnosis and fault tolerant control to practical systems

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