عنوان مقاله:

Fault Diagnosis of Discrete-Time Linear Systems Using Continuous Time Delay Petri Nets

نویسنده:

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خلاصه مقاله:

This paper deals with fault diagnosis of a linear continuous variable dynamical system represented by a discrete state space model. The proposed fault diagnoser is based on a special Petri Net called Continuous Time Delay Petri Net (CTDPN). Thanks to the theorem presented in this paper, an exact correspondence between discrete-state space equations and fundamental equations of the CTDPN can be established. Based on this theorem, a systematic method is presented for realization of classical parity equations by a CTDPN that plays the role of the fault diagnoser. By integrating the concept of state space models and Petri Nets in this paper, new and effective methods can be proposed for analyzing and fault diagnosis of hybrid systems. Finally, the performance of the proposed method is investigated for fault diagnosis of a DC motor. The results show that with the help of proposed Petri net, fault diagnosis can be done well and traditional diagnoser can be replaced with this network.

کلمات کلیدی:

continuous-Time Delay Petri Net, Fault Diagnosis, Parity Equations, State-Space Model

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