Sociedade Brasileira de AUTOMÁTICA

V Webinar 2021

25 de novembro de 2021 às 10h.

Behavioral identification of Discrete Event Systems. Application to fault diagnosis

[Canal do Youtube da SBA]

Abstract: Discrete Event Systems (DES) are dynamical systems whose changes of state are driven by occurrence of events. Modelling of a DES most often consists in translating this event driven dynamics by means of Finite Automata or Petri nets. Due to numerous factors (huge number of states, huge number of events, strong parallelism in behavior ...) the "by-knowledge" building of such a model is always difficult and time consuming, and most often becomes error prone when the size of the system to be modelled increases. In the field of continuous systems, which are time driven systems, identification techniques, allowing the building of the behavioral model of an existing system by an experimental approach are used since long time. Identification technics are today very efficient and are often used in industry. In the field of DES, such identification approaches have only been developed since few years.

In this webinar, different approaches allowing to build the behavioral model of a DES (under the form of Finite Automata or Petri nets) by identification will be presented. Afterwards, in order to show the efficiency of identification methods and the accuracy of the identified models, the use of such an identified model for fault diagnosis of DES will be presented.

Biografia do palestrante: Prof. Jean-Jacques Lesage is currently a Full Professor with the Department of Mechanical Engineering, ENS Paris-Saclay, France. He received the PhD degree from Ecole Centrale de Paris, 1989. He has conducted extensive research studies in Formal analysis of models and control programs; Algebraic synthesis; Performance analysis of networked automation systems; Model-Based Safety Analysis, diagnosis; Identification by Finite Automata and Petri Nets; and DES approaches for Ambient Assisted Living. He is a Senior Member of IEEE and was a Co-Chair of the IFAC Technical Committees TC 1.3 on Discrete Event and Hybrid Systems from 2011 to 2014. Also, he is member of the IPC of more than 20 international conferences since 2010. Prof. Lesage is an Associate Editor of IEEE Transactions on Automation Science and Engineering, and of the IFAC Journal Annual Reviews in Control.

Apoio: *CT de Automação da SBA*