STRATEGOS Webinar

Decision Making based on Simulation, Analysis, & AI

9.30-12.00am GMT+2, May 11th, 2020, Webinar (by Microsoft TEAMS Click Here)
POC: *Emilio.Jimenez, Simulation Team,* Universidad de la Rioja & Past President of Eurosim
Email: emilio.jimenez@unirioja.es, Webinar will be in English and running on MS TEAMS

This Webinar addresses the use of Simulation, Analysis and AI to support Decision Making in Industrial Plants and Complex Problems such as the Wine Production and Supply Chain of Logrono Region in Spain

The **construction**, **set-up** and **operation** of many systems of interest in sectors such as **Industry**, **Supply Chains** and **Communications** are **Complex Processes**, which may require *significant investment of resources*. For this reason, the **Automation of the Decision Making** for achieving the best **Design** and **operation** of such systems, which may be regarded as **Discrete Event Systems** (**DESs**), constitutes an **Active Research Field**. This **Webinar** present a methodology to cope with this process in an efficient way, optimizing not only the behaviour of the **DES** but also its Structure. This kind of problem is usually associated with the so-called **combinatorial explosion**, since the number of alternative configurations for the **DES** might be huge. **Interactive Case Studies** are proposed as examples: e.g. **Logrono Wine Supply Chain** It is proposed an **improved algorithm** to transform a set of alternative **Petri Nets**, representing alternative structural configurations, into a more **Compact Model** called as **alternatives aggregation Petri Net**. In real **Decision-Making Problems**, where the different alternative structural configurations may share common subnets, this compact model may allow the development of a much more efficient **Optimization Problem** than the classic approach of **'divide and conquer'**. The achievement of this objective is performed by developing a single and compact model for all of the alternative structural configurations of the **DES** and the **Simulation** of the most promising of them. In this **Webinar**, the mentioned methodology is introduced and its advantages and drawbacks are described in relation with most classic approaches.

Università di Genova

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