Special Session proposal

Title:
Reinforcement Learning for RAMS

Organizer(s):
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Description:
Reinforcement Learning (RL) is a promising methodology for optimization of system RAMS (Reliability, Availability, Maintainability and Safety). It is a machine learning framework in which a learning agent optimizes the decisions on the actions to undertake on the given system of interest by consecutive trial-and-error interactions with a physical model providing the response of the system to such actions. In other words, the iterative interactions aim to find the optimal policy linking the system state to the action that maximizes a given reward.

This special session aims at gathering contributions to enable the potential of RL for RAMS optimization in practice: both theoretical and technological advancements are welcome.

Some topics of interest are (but not limited to):

Methods:
- Tabular RL
- Deep RL
- Policy-based RL
- Value-based RL
- Actor-Critic RL
- Multi-agent RL

Applications:
- Asset management
- Reliability optimization
- System layout reconfiguration
- Loading optimization
- Operation and Maintenance optimization
- Inspection scheduling optimization
- Predictive maintenance optimization
- Prescriptive maintenance optimization
- Spare parts flow optimization