

Proposal for Special Session at IEEE CASE 2021

Goal: The focus of this Special Session is on formal and distributed methods and algorithms for path and task planning of multi-agent systems. The big challenges in these applications are (1) the formal models used to model the team and (2) the collision avoidance strategy. Both modeling perspectives, top-down from high-level description using discrete event systems, and bottom-up from particular algorithms, e.g., consensus, are of interest. Regarding the collision-avoidance, the proposal should be oriented to reduce the computational complexity to be applicable in real time. Papers dealing with real applications in which a multiagent system is used to solve a particular problem are welcome but also software tools and real implementation.

Session Title: Distributed path and task planning of multiagent systems

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Contributions:

1. “Distributed path planning using petri nets and reinforcement learning” by Eduardo Montijano and Cristian Mahulea
2. “Optimal Inspection Strategies for Networked Robotic Systems Operating on Dendritic Topologies: Formal Characterization and Complexity Analysis” by Spyros Reveliotis and Young-In Kim
3. “Online sequential task assignment with execution uncertainties for multiple robot manipulators” by S. Zhang and F. Pecora
4. “Distributed multi-robot motion planning and coordination based on critical points” by M. Cecchi, M. Paiano, A. Manno, A. Palleschi, F. Pecora, L. Pallottino