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Multi-objective decision making system based on spatial - temporal logics

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Abstract

Multi-objective decision making systems based on Spatial-Temporal logics presents a class of computational systems based on Artificial Intelligence in which spatial location and time evolution of processes (events) are taken into account. Multi-objective decision making systems showcase a distributed computing architecture based on Agents (Computational Nodes) that form a network for data processing. The functionality of the decision making system is based on events that are spatially and temporally localized. The set of Agents, based on the events, calculates its influence coefficient on the decision taken by the Agent. An Agent can generate both decisions, which lead to personal qualitative evolution, and events that will be processed by other Agents. This work elaborates the following: the multi-objective decision system diagram, the communication model between Agents, the set of operators for spatial-temporal logic, and the model for optimal solution search in event space.

Keywords: *decision making system, evolutionary algorithms multi-objective optimization, multi-agent systems, nature-inspired optimization, spatial-temporal events, spatial-temporal logics*

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