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Intelligent Multi-Agent Based Information Management Methods to Direct Complex Industrial Systems

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ABSTRACT

In recent years, the increasingly complexity of the logistic and technical aspects of the novel manufacturing environments, as well as the need to increase the performance and safety characteristics of the related cooperation, coordination and control mechanisms is encouraging the development of new information management strategies to direct and manage the automated systems involved in the manufacturing processes. The Computational Intelligent (CI) approaches seem to provide an effective support to the challenges posed by the next generation industrial systems. In particular, the Intelligent Agents (IAs) and the Multi-Agent Systems (MASs) paradigms seem to provide the best suitable solutions. Autonomy, flexibility and adaptability of the agent-based technology are the key points to manage both automated and information processes of any industrial system. The paper describes the main features of the IAs and MASs and how their technology can be adapted to support the current and next generation advanced industrial systems. Moreover, a study of how a MAS is utilized within a productive process is depicted.

KEYWORDS

Industrial Systems; Information Management; Intelligent Agents; Multi-Agent Systems

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