The development of a hybrid, distributed architecture for multiagent systems and its application in robot soccer

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Abstract
Several issues still need to be unraveled in the development of multiagent systems equipped with global vision, as in robot soccer leagues. Here, we underscore three of them (1) real-time constraints on recognition of scene objects; (2) acquisition of environment knowledge; and (3) distribution and allocation of control competencies shared between the repertoire of the agent's reactive behavior, and the central control entity's strategic and deliberative behavior. The objective of this article is to describe the implementation of a distributed and hybrid reactive-deliberative control architecture for a multiagent system, equipped with global vision camera and agent local sensor and cameras. This multiple agent system was developed for application in robot soccer. We present the digital image processing techniques applied, as well as the proposed control architecture aimed at satisfying the constraints of this kind of application.

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