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Distributed, play-based role assignment for robot teams in dynamic environments.

Summary: The design of a coordination strategy for a distributed robotic team is challenging in domains with high uncertainty and dynamic environments. We present a distributed, play-based role assignment algorithm that has been implemented on real robots in the RoboCup four-legged league. The algorithm allows the robots to adapt their strategy based on the current state of the environment, the game, and the behavior of opponents. The distributed play-based approach also enables the robots to reason about task-based temporal constraints and has been designed to be resistant to the problem of role oscillation.

Keywords: RoboCup four-legged league