A Case-Based approach for Coordinated Action Selection in Robot Soccer

Designing a robot’s behavior in imprecise, uncertain, dynamic, unpredictable and real-time response domains is very challenging, and even more if an adversarial component is also present. An example of such domains is the robot soccer. In this work we propose the use of Case-Based Reasoning techniques to handle all these features in the action selection problem of a team of robots. Moreover, we are also interested in obtaining a cooperative behavior among robots to successfully perform joint tasks. Thus, we include explicit passes between robots, not only to enhance collaboration, but also to face the adversarial component of the domain, i.e. the opponents. We evaluate our approach with respect to a reactive approach in 2 vs. 2 scenarios, where two attackers play against two moving opponents, i.e. a defender and a goalie. We successfully show that our approach not only achieves the expected team behavior, but also outperforms in general the compared approach.