

BahiaRT RoboCup 2015: Drop-in Player Strategy

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1 Cooperative Strategy

BahiaRT's intelligence module [1] had four behavioral states: limited when the agent is not capable of participating in any play, active when the player is either with the ball or has higher chances of gaining possession of it, and cooperative, their role is to follow a formation[2] defined on the strategy module, which is fundamentally based on the ball's position on the field, and finally the defensive, which is the player with higher chances of intercepting the opponent with possession of the ball. To cooperate with unknown teammates, the agent uses the same logic as it would use in the main competition, analyzing the chances of intercepting the ball before any ally, and then deciding whether it will behave as active, cooperative or defensive.

BahiaRT focuses on developing an efficient team strategy, serving one of the main goals of the league: cooperation between players. The agent uses the communication to reinforce its own information, acquired through the vision sensor, or to fill in any information that might be missing, for example when the agent can not see the ball for too long. Since the drop-in challenge involves interacting with unknown teammates, their information such as position, orientation, ball position and ball velocity are received, processed and compared with the agent's own information, if they seem to match, then our agent knows communication is a reliable source. BahiaRT agents analyze the confidence of its own information based on the last cycle the object or agent was seen, when the value of the confidence reaches a level lower than acceptable, it will fill the missing data with information received from communication, as long as it is trustworthy.

References

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