

Soccer Simulation 2D

Team Description Proposal for Robocup 2013

Iran

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Abstract. This paper describes our ideas in relation to 2D soccer simulation for contributing in Robocup 2013 competition. We have obtained some special algorithms in our team structure in order to improve pass, shoot, team formation and dribble skills.

Keywords: Delaunay, Voronoi, XCSF

1 Introduction

Iran 2D soccer simulation has been established since 2008 and yield championship in BrazilOpen2008 in soccer simulation league. At the beginning, we had used Mercad base which was published in 2005 and after publishing of Agent2D we applied our developed algorithms on this team base. In the reset of this team description paper we discuss our pass algorithm.

2 Pass

One of the most important skills in each team is pass skill. We have developed two kind of pass algorithm in our team which is called IranPass and IranThroughPass.

2.1 IranPass

Firstly, we consider a vector of *ConditionStates* in order to evaluate each teammate as a target for pass and evaluate target distance to ball, opponent distance to ball, opponents that covered target and so on for each target. These are some criteria that score an individual condition. Next, by means of a function we estimate that either ball holder can pass to specified target or not. Mentioned function uses *predictor* class to estimate that either opponent player reach the ball or target teammate player. So, if the opponent player reaches the target sooner than teammate player, ball holder

ignores that target for pass. Finally, scoring system selects a target for pass. This system is novice and do not use feedback of environment in pass algorithm. In feature we are supposed to obtain feedback of environment and optimize pass target scoring by means of XCSF algorithm [1].

In this part like IranPass, the algorithms consider some *ConditionStates* to evaluate targets that are proper for through pass. In through pass the most important factor is the empty area behind the defense line of opponents that target teammate can reach the ball. For this propose ball holder evaluate some points that is between the last opponent defense and opponent goalie. Finally we consider a triangle that consist of ball holder, target player and pass point as it is depicted in Fig.1, Fig.2 and Fig.3.

Fig.1. First step through pass

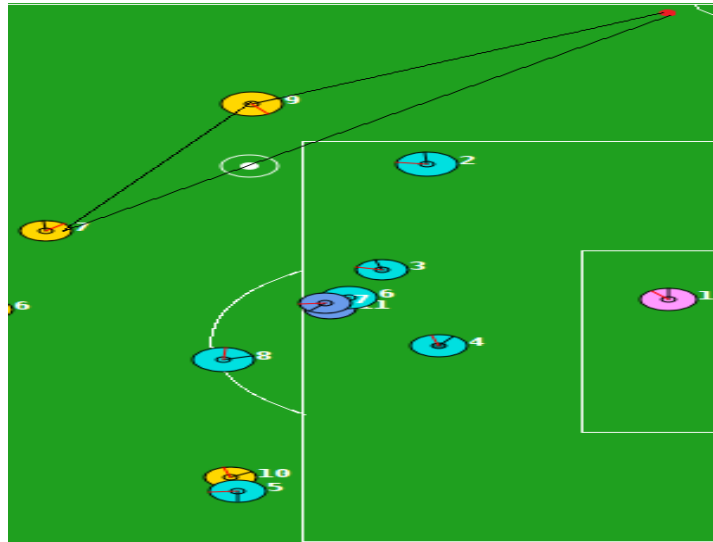


Fig.2. Kick ball to selected target for through pass

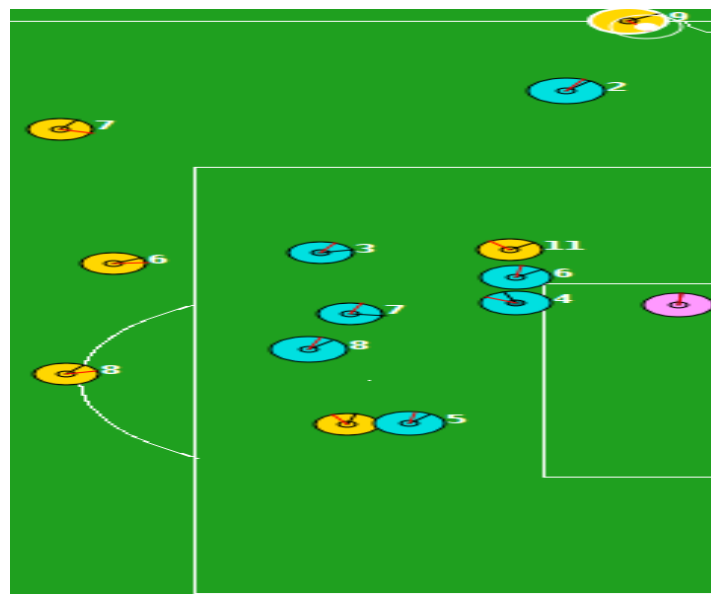


Fig.3. Iran player that reached the ball

Moreover, in final part of the ThroughPass algorithm, we select a target point that is against the opponent player movement direction which is located between ball holders and pass target point.

4 Future Work

In this TDP we have describe our developed pass algorithm. Vividly, we should improve our team skills in future and we are supposed to reduce environmental noises and use *Delaunay* and *Voronoi* algorithms [2], [3] to improve pass skill. We hope to develop some other effective algorithm in near future.

References

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