

Alice Robocup Simulation 2D Team Description

Chenghu Wang Fan Wang
HeFei Normal University
miracle.hftc@gmail.com

Abstract

The paper mainly introduces formation changes, long passes improved and data analysis..Our team use log Mining from rcg and rcl files to find better attack tactic and defensive tactic ,this helps us design our team model more effectively.

1.Introduction

Our team was founded in 2016. This is the second time when we apply for the chance to participate in Robocup 2d competition. Our team code is based on agent2d3.1.1[1] which is released by Mr. Akiyama ,it also includes fragments of released code of Marlik2012[2] and Helios2008[3]. We sincerely appreciate the assistance from Hede hisa Akiyama and all of the relater open source developers.

The team won seventh in the World Competition last year and was the champion of the Evaluation challenge.

2 Strategy and Formations

For a team, the formation is also very important. I believe that attack is the best defense. Compared with our previous changes in offensive formation, we have increased aggressiveness. When attacking, they are always less than many, which is very difficult. Therefore, in order to attack more, we should allow more players to play in the midfield, but we also need to think about defense. Our No.4 and No.5 even though we have played the midfield, but will not go too far, so that we can quickly defend.

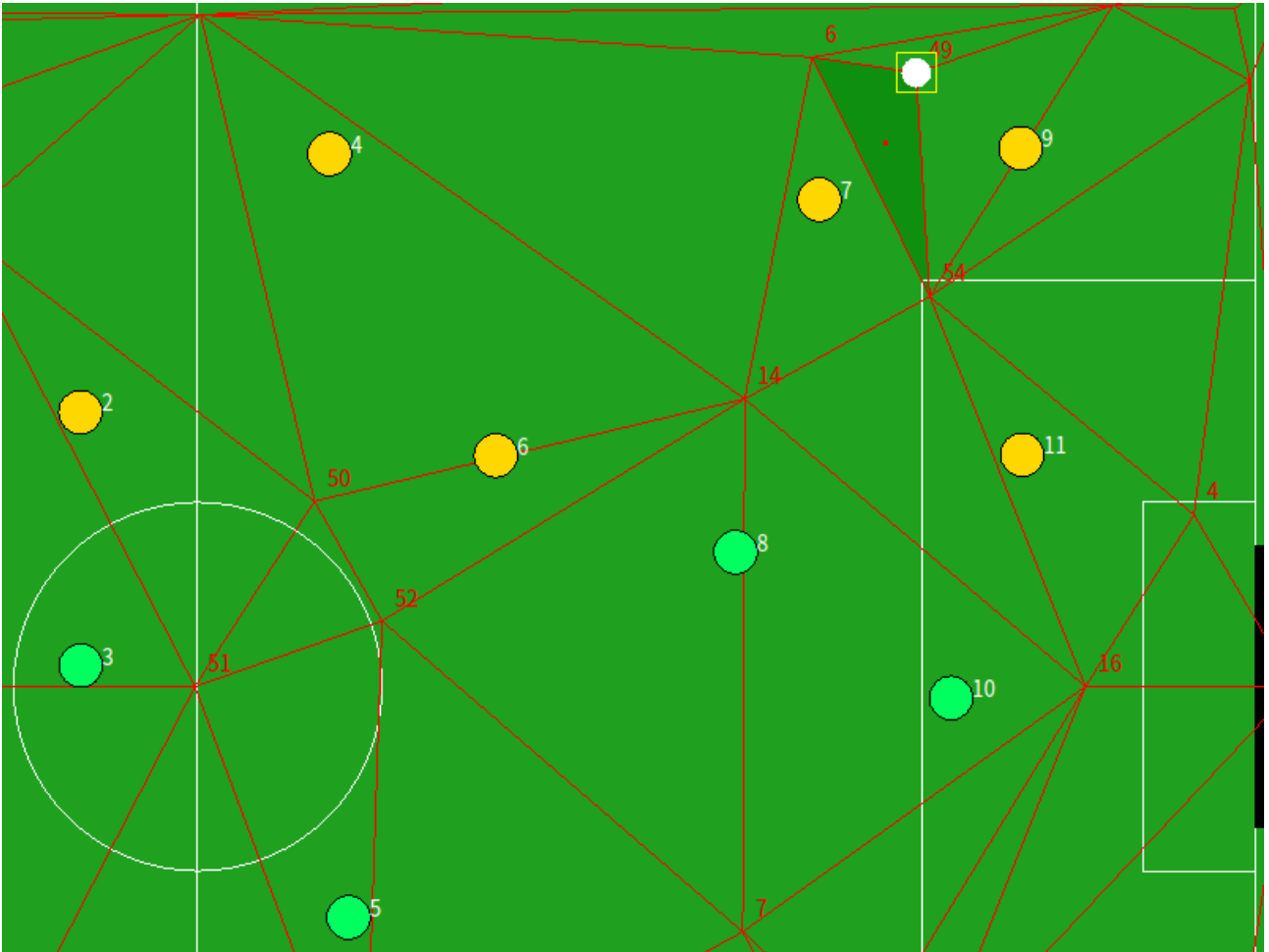


Fig.1. At the time of competition, No. 9 player dribbling attack is very easy to be intercepted by the other side, and the location of No. 7 is just the dead corner of passing. So in this case, our 4 player can play an intermediate bridge's role to make the ball alive.

3 Improvement of long pass

After a lot of games, we found that only a long pass can make the attack more fast, but we also found some problems in the long pass. There is a certain error in the direction of passing, which leads to the failure of passing, and the error of passing direction is inevitable. Then we will improve it from the catcher to prevent the enemy from interfering with our catching. When the enemy was long pass and our players under certain conditions than the enemy advance stopped the ball. We calculate the best catch point of catching person by similar triangle.



(a)

Fig.2. No. 10 near enemy players have 4 players, if dribbling into very likely to be intercepted, so No. 10 to No. 11 player direction pass, pass direction is obviously not the No. 11 player, the No. 11 is the best way to get the ball to the ball along the vertical direction of movement to the point of intersection, so as to ensure the ball is safe and labor-saving, the ball rate is much higher than before.



(b)

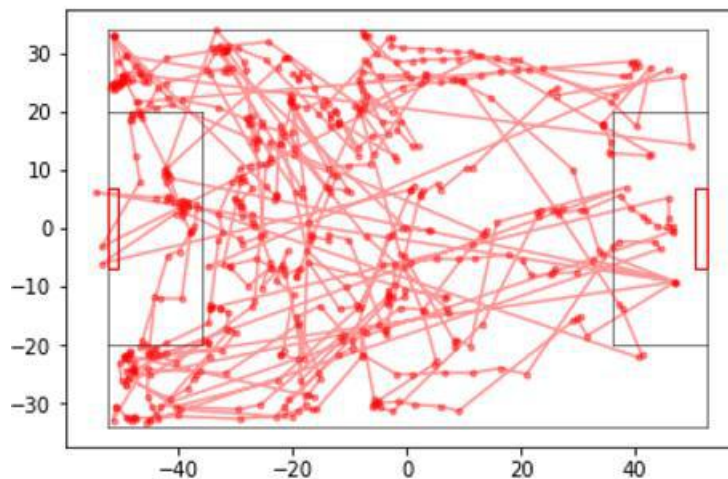


(c)

Fig.3.No. 10 and 11 are enemy players, No. 4 is our player. No. 11 passes the ball in a certain direction to No. 10, and our number 4 has the ball in advance to intercept the ball.

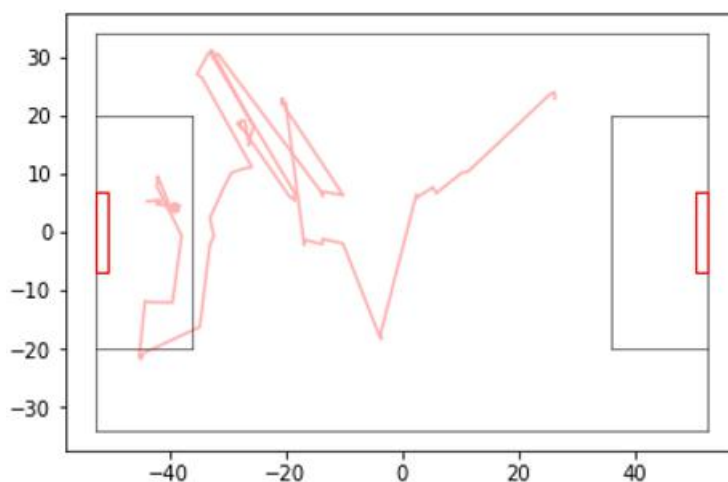
4 RCG data analysis

Every game will generate log files, and the log data will be stored in the entire game. We can get the desired information by analyzing the log file, and here we mainly analyze the RCG file. We use Python to extract data and analyze data. First, we extract data using regular expression correlation method. Secondly, we get information about the ball and all the players. Through these data analysis, we can know each other's offensive and defensive shortcomings, so as to change our formation and strategy to improve our winning rate.



a. Analysis of nodes formed by kick line

Fig.4 This is the picture of the other side playing football. From this picture, we can see the attacking strategy of the other side. We should strengthen our defense in the deep color area.



b. Analysis of its attack sequence

Fig.5 By analyzing the attacking route, we can get a more effective attack.

5 conclusion

This paper describes the current efforts of Alice. The first thing we have to do next is to prevent being marked by the enemy in the attack. And then we strengthen the control of the ball, take the offensive instead of defense, and reduce the chances of making mistakes. In the future, we will spend more time on deep learning about agent and try to use a coach in a game and data analysis.

References

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2. <http://chaosscripting.net/files/competitions/RoboCup/WorldCup/2012/2DSim/binaries/marlik.tar.gz>
3. <http://pumath.dl.osdn.jp/rctools/32271/helios-08Suzhou.tar.gz>