

TwinTeam 2D Soccer Simulation Team Description Paper

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Abstract. This paper describes main skills of TwinTeam 2D soccer simulation team (2010). In this paper we describe our works including both the algorithms extending imperfect already existing modules such as block and some newly added modules such as dribble system.

1 Introduction

Twin Team 2D soccer simulation team was established in 2010 at Daneshvar high school. The history of our team Twin Team is very short. In 2 years ago we start Robocup in 2D soccer simulation league and we forward very well in this progressive action. In this year we will participate in some competitions like FBI robotic cup and AutCup 2010 and 2 another student competitions. This team uses code of Agent2D3.0.0 and librcsc4.0.0 as base code with good low-level foundations and continuous project activity.

2 With ball skills

2.1 Pass

Pass is one of the most important skills of a team. Therefore, a team must have a strong algorithm for pass for have a good show in field. Pass consists three parts: **direct pass, through pass, and leading pass.**

2.1.1 Direct Pass

We understood that our fault in locating pass point is that opponent takes the ball in its path. This problem doesn't solve with drawing geometrical shapes, and other conditions like reach cycle of ball taking of opponent or teammate,

C Opponent and some situations like it should be considered. This team uses two kinds of pass: fuzzy pass and geometrical pass.

First, geometrical pass is checked. If its condition was not correct, it goes toward fuzzy pass, which its algorithm is: We weigh each individual using different function like his location, his distance to ball-holder player, opponent player reach cycle and some another like it after that we pass one with higher weight.

2.1.2 Through Pass

We define some hypothetical points, which one passes after checking the conditions. As mentioned, we have some assumed points, and we are going to make them exact with a strong algorithm.

2.1.3 Leading Pass

In leading pass, we pass to a point nearer instead of the individual. This helps us to counterattack. To find that point, we used several conditions of direct pass. Also some conditions were added to exact pass because it is highly possible to lose the ball. One of the conditions, for example, is that we calculate the number of cycles to the ball. Then we pass if it is lower of the number of cycles of the opponent to reach points.

2.2 Dribble

2.2.1 Normal Dribble

At first, usual dribble is done. In this part, we divided the opponent's ground to several partitions, and assigned a point to each partition. Every partition will check with some conditions like number of opponents, reach cycle of fastest opponent to dribbling point and some another like these conditions.

2.2.2 SRP dribble

In this method, player strikes the ball slowly and goes after it. In this algorithm, we draw two circles with different diameters around the holder-player. Then we draw 9 lines from the holder-player and find their intersections with the circles. Then we draw 4 polygons as shown. By sorting the distances from the gate, player goes toward the point closer to the gate.

2 Future plans

In this paper, we have simply described the main features of TwinTeam. Although the current agents have a relatively stable status, there are several problems must be corrected as soon as possible. In addition to debugging, we are planning to design new plans, tactics and advanced skills for TwinTeam agents. We are also interested in studying reinforcement-learning techniques and hoping to apply these techniques to TwinTeam.