Robocup SoccerSim TDP

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No Institute Given

Abstract. We are DDStudio from Budapest, Hungary and this is our entry for the Robocup SoccerSimulation. For as long as we can remember, we have all been really interested in coding and we also loved to play soccer. We thought this competition would put these two intrests together. In this paper, we will explain how we worked on this project together, what problems we had and how we overcame them.

1 Introduction

Our task was to create a script to control a team of simulated robots running in a software called Webots, that played a game of soccer against another team. We decided to use a strategy, where we would identify which robots were in the right position to defend and attack. Based on this we would try and do this in the most optimal way.

Fig. 1. Picture of DDStudio

2 Robots and results (the software)

2.1 Strategy

We decided to categorize the robots into two groups: strikers and defenders. We would have one robot that is constantly defending close to the goal and the other two would decide based on the situation to either stay back or attack. Like this there would always be at least one robot defending, and one attacking. The defenders stay behind, in line with the goals and move forwards or backwards depending on the position of the ball. The striking robots move towards the ball to score, but immediately retreat if the ball gets behind them.

2.2 Problems, Changes

Sometimes due to the inaccuracy of Webots our robots could get slightly overturned and would go too far away from our goal and let the ball get through. To solve this we always made sure that the defending robot was always behind the trajectory of the ball There was a problem with the robots' role-allocation algorithm, which sometimes caused the robots to spin indefinitely.

3 Conclusions and future work

In the future we would like to add new attacking and defending strategies, and make algorithms to determine which is the best one to use at a given moment. Experimenting with Ai might be something worth going into, but we didn't have enough experience or time to that yet.

4 References

Python
Github