Delta3D Development Team Description

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Abstract. This paper describes the main features of the utility software Persian Robotics Analyst (PRA) that can help researchers have a deeper look into their simulations. It can be used for offline and online analysis of the simulation games and will retrieve more information than just number of the goals scored out of the simulations.

1 Introduction

The ideas behind Persian Robotics Analyst (PRA) were started by one master student from Computer Engineering Department of Amirkabir University of Technology (Tehran Polytechnic) for his MS thesis [1][2]. They were first used during the simulations done in order to investigate machine learning methods in a 2D soccer simulation team and it is now a cooperative work with four of his students in Computer Engineering Department of Shahid Bahonar College in Shiraz, Iran.

During those simulations it was considered that the number of goals scored can't provide enough and fair judgments of the games in lots of cases (especially in cases of a tie). So, it seemed that it might be necessary to have more parameters in order to have a deeper feeling of the simulations done and in order to have a better look inside the simulations.

So some additional parameters were defined and used in order to provide a better understanding of the soccer simulation games' run. The most important ones out of these parameters were as such [1][2]:

• *The percentage of possession of the ball for each of the two teams during the simulation.*

• *The percentage of ball movement in each 1/3 of the field.*

• *The maximum continuous time that each team has the ball in possession (in cycles) during the simulation.*

• *The maximum number of continuous passes between the members of each team (without being cut by the other team members) during the simulation.*

• *The percentage of "right actions" done by each player of the team versus its "wrong actions" during the simulation.*

There were a lot of simulations analyzed by these factors and they had great affect on the way the simulations were conducted. Besides, at the end of the research, there

were a lot of diagrams to show the progress of the learning, not just bare numbers showing win or loss [1][2].

2 Persian Robotics Analyst (PRA)

PRA is intended to be a simulation analyzer that will provide the parameters like the ones mentioned above to the researcher. We intend to prepare it as a visual software tool under Windows OS for the first release. Also we intend it to be as an offline assistant for the first release. It means that it can be fed with logs of 3D simulations and then it gives a visual statistical report of the game, the behaviors of individual players, and the progress they have had during the simulation (i.e. from play to play).

It can be extended in the later versions to work as an offline coach, in order to train the players (using the observed behavior) too.

3 Conclusion and Future Directions

Our goal is to provide a tool that can help researchers have a deeper look into their simulations. It can be used for offline and online analysis of the simulation games and will retrieve more information than just number of the goals scored from the simulations.

We will provide the later versions with some extended capabilities such as being able to analysis the simulation games online, being able to run under Linux OS, and being able to act as a coach assistant during training phases.

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References

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