

Team Description

Arman 2005 – 3D

Mosalam Ebrahimi, Mohammad Ali Darvish-Darab

Department of Computer Science, Shahriar Azad University, Shahriar-Tehran, Iran

1 Introduction

This paper introduces our high level skills. More precise, since 3D Soccer Server is changing and new version is coming we decided to work on high level skills. We mainly focused on action selection. So most of this paper is dedicated to this subject, and our tests.

2 Agent Architecture

The main part of our agent architecture is its action selection architecture. We used FCMs to design an architecture for action selection (Fig. 1).

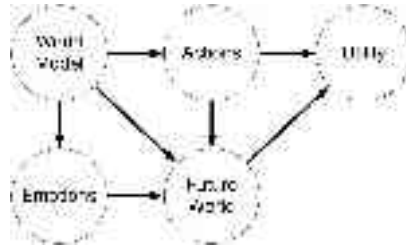


Fig. 1. An architecture for emotional action selection using FCMs

We added emotion and creativity to the architecture and tested overall performance. Fig. 2 show comparison of emotional and unemotional action selection in a specified scenario, Fig.3 depicts that scenario. We statically compared emotion and unemotional action selections and the result shows emotional action selection was significantly better than unemotional action selection.

After adding emotions and creativity to the architecture, it can easily defeat almost all learning algorithms. And because a lot of RoboCup teams use learning agents, this architecture for action selection will be innovative.



Fig. 2. Comparison of emotional agent with unemotional agent in simulation

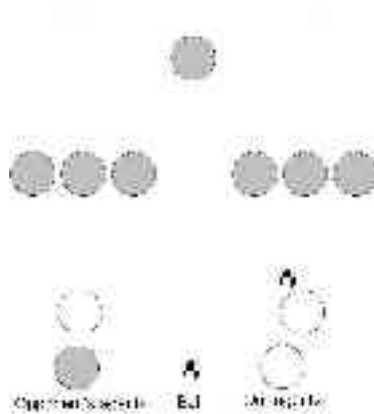


Fig. 4. This Scenario used for comparing both agent kinds

3 3D Development

Our idea to implement is simulating crashes. Now our idea is (at least) adding noise in actions after crashes. This way it will be a new constraint and agents should be careful and don't waste their body. For example, in machines if agent crashes and it's from head, so some noise will be added to its turning and speed control. Also because we have C++ programming experience, decided to take a look at the source code. Hopefully we noticed that we can help to optimize it.