Bare Demo of IEEEtran.cls for Conferences

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***Abstract*—The abstract goes here.**

I. Learning

Learning and planning in this setting is not trivial and can only be achieved through several techniques that allow us to represent the huge state and action space of the *Domination Game* in a minimalistic way. First of all, we are dealing with a continuous state space in respect to the agents' positions, the observations about our opponent agents, the amount of ammo that we have - can be an integer from zero to infinite theoretically, and the general statistics about the game which could be represented by a huge number of discrete integer values. As an example, we can represent the score of the game as a really informative feature of our state space. However, to represent the score you need all 2-decimal point float numbers between 0.00 and 1.00, which are 101 discrete states. In this case, techniques like keeping only the first decimal point of the score value leads to a huge decrease in the number of states, i.e. 11 states. Hence the state space of this game grows rapidly in respect to the number of features we use to represent the state and the action space of our agents. As it is referred in [**boutilier2011decision**], the curse of dimensionality.

A. Grid World

Our first approach to deal with the problem of