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Computer Science: Teaching Methods - Artificial Intelligence in Gaming

Abstract:

Game simulations are an effective way of introducing modern artificial intelligence concepts to emerging students. The paper explores how two popular game simulations accomplish this. Mario is the name of a character that traverses across worlds which scroll sideways to get to a certain goal, while collecting points in the form of gold coins, destroying adversaries such as goombas, bullets and other creatures that pose a threat to him.

BattleCode is a Real Time Strategy (RTS) game. BattleCode is a game, where contestants are pitted against each other to go through a virtual world with a set of robots as their teams, collecting resources and different kinds of weapons all the while trying to eliminate the other teams robots to conquer the maximum amount of area.

The Mario AI Gaming competition, BattleCode by MIT and several other similar ones have drawn the attention of many, researchers and students alike, to the possibility of creating smart games. Games with some intelligence; games that search for the best possible solution given a problem set. Mario AI and BattleCode happen to be two very efficient and high-demanding competitions which focus on incorporating the use of A* search algorithms in the code of the games to make it smart to bring about optimal searching, in the case of Mario and efficient strategizing, in case of BattleCode, to intelligently assess situations and get the best possible solution.

First, both these draw attention of the younger crowd and spark interest in computer science as a field of study. Combining Artificial Intelligence with Mario and BattleCode, not only serve as an area of interest for gamers who are interested in computing, but also coders who favor gaming as a past time. Secondly, these competitions draw out potential fields of research. This is effective in classroom teaching as well. A course that can offer such exciting results and the capability and tool to reach these results is bound to interest students and keep their attention focused on the topic.

Not only the competitions and the concepts draw attention to this field of study, but also the lacking literature and the vast, unexplored scope provide for an excellent field to develop tools and use as methods to introduce new concepts and new applications of artificial and computational intelligences to classrooms.