ARTIFICAL INTELLIGENCE IN VIDEO GAMES

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Annotation. Many IT companies in search of prosperity have chosen a game development industry. Obviously, developers are interested in the best way to fasten and optimize their work. Here the artificial Intelligence enters the stage. It helps minimize monotonous human labor, gathers information and notices details others would simply forget to invent. In result, usage of AI will increase the quality of gaming, drastically changing development process and price.

Keywords. Artificial intelligence (AI), Artificial General Intelligence (AGI), Artificial Biological Intelligence (ABI).

Simply saying, artificial intelligence (AI) is the category of software that can 'learn', as humans. It is a great help in adapting pre-written code to the newest changes. Such an algorithm classifies data, analyzes it, and makes predictions. In literature there are two types of AI: AGI (Artificial General Intelligence) and ABI (Artificial Biological Intelligence). The second one is not so wildly used because of the lack of research. ABI tries to emulate the human way of thinking, while "strong" AI is a brute force to recreate such complex things as motions, natural physics, and even economic behavior.

In recent years technologies have stepped forward, as well as our expectations. To meet them developers should constantly improve themselves. The greatly improved parameter is graphic. If a game looks good – the amount of it's byers is growing exponentially.

The first question that comes in one's mind is how to emulate our complex reality? Such things as water, fabrics, trees with moving leaves, hair, clouds, and mirror's reflections are built-in components of our reality. Take them away – and you will never get the true filling of presence in a game. Shades and reflections, building blocks of any realistic object, are very hard and time-consuming to recreate, but AI makes it easier. Just 'feed' it with information about water physics and color gradients and it will create an algorithm of perfect waves. And the more data about waves it will get, the more varieties it will be able to draw, just like a person in a drawing school.

The newest AI algorithm got the ability to emulate human emotions and mimic, and all it needs is just a voice recording. It analyzes the similarities it got with sound patterns in its system, and the results are bearable to use in quick NPC actions and cut scenes. Small feature, but time-saving.

The greatest point of AI usage is to create different random levels and maps in real-time. No one wants to draw hundreds of thousands of rooms with different objects, but AI can do it at ease. The greatest achievement of AI in this sphere is the creation of its own game; of course, it lacks any innovative parts and independence from pre-learnt algorithms in AI's data but opens huge possibilities for in-game

customization. For example, you want your game to emulate the New Year's Eve event in all living facilities. It does not need to be perfect, so why not use AI to achieve it.

AI may be a great help at emulating behavior. It has already learnt how to create human crowds (or any kind of living creatures) with the ability to respond to player's actions. For example, if a player makes a loud noise in a game, the characters may turn to the sound, get closer/far away, act frightened or interested, and all of it with the help of one algorithm with the minimum of human moderations. We can also try to recreate the behavior of someone specific in many games the mechanics of 'learning' and 'adaptive' characters is getting very popular, especially when game characters get the ability to 'remember' past player's actions, so their response differs every time you replay the game. It helps to increase the possible hours in-game, which is good for the developer's profit.

There are many possibilities for AI to simplify our life. The researches in this branch of technology are not completed, but the results are already stunning. Yes, there are many minuses such as the long duration of data processing and its huge capacities. Returning to the example of water animation, it will take days to recreate a realistic sea, starting from gathering information, its analysis and, finally, scene building, and render. Such graphic algorithms are used in cinematography and animation films more recently due to slow speed. But in the nearest future, I'm sure, we will be able to optimize AI algorithms and fasten their learning process. There is already a huge amount of companies working on such problems in hope of selling their researches expensively. Slowly, it is growing into the competition, and I think, it will be very interesting to take part in it.

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