ARTIFICIAL INTELLIGENCE IN GAMES AND ITS APPLICATION

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***Abstract*—The recreation of human intelligence processes by machines is known as artificial intelligence. Here we will do a deep study of artificial intelligence and what is the role of ai in-game. Basically, Artificial intelligence in games means brains in the game where we can add weapons, creatures, increase and decrease car speed, accelerator, and many things, and this is all handled by artificial intelligence. This paper provides a broad overview on an artificial intelligence, and this is developed around a various component of an architecture of an intelligent agent like representation of knowledge through machines, they are able to solve problems and they are able to do planning, they are able to knowledge acquisition and they are also able to learning, natural language, speech, and vision, action processing, and robotics. Artificial intelligence improves game play, and it improves the game experience. It makes the game realistic by adding graphics, physics, adding non player characters and artificial intelligence in games.**

I. Introduction

Fig. 1. Artificial Intelligence

First question arise in our mind is that what is Artificial intelligence? How it works? How it used? Why it is so important? The configuration of human intelligence processes by machines, especially by computers and we can say that artificial intelligence means adding brain to machines and we can say that ability to think like a human, ability to act and ability to take a decision like a human is known as Artificial intelligence A few examples of Artificial Intelligence and its applications are Machine vision, Natural language processing, Speech recognition, and Expert systems and so on Artificial intelligence is basically divided into weak or strong AI..

In last couple of years, various companies as well as governments has started to digitize the management of the supply chain system ,starting from technological repository which in each entity have their own separate hardware and software, such as distribution cycle,inventory management ,accounting system etc. All of these system at last were finally integrated into a single ERP system ,which make it ease to manage all the components from a single platform . But,not all of the ERP based systems could integrate different software running on different platform , and a one of the main Weak AI is also called as narrow AI. It is an AI which is designed and it is trained to perform a particular task and weak AI is used by Siri which is a virtual assistant and an industry robot. Strong AI is also known as general artificial intelligence. And it has the Abilities which is similar to the human brain. which is able faced with an unknown task, and this type of AI systems can be used to solve a basic logic to apply the information from one field to another, they are able to find a solution of their task on them own.

Game playing is the most popular part of human beings from very long period. With the development of artificial intelligence, we have seen very changes in the sorts of games whether it is in online or in offline video games. In 1950, most famous video game is introduced too artificial intelligence, and it do progress in this field. Most of games in artificial intelligence are marked as a milestone in this line. in artificial are marked as a milestone. in 2017, Kee Jie is defeated in go player in the world's number one ranking by Kee Jie is defeated in go player in the world one ranking by AlphaGo. Then ten broad research are identified by Yann kakis and Toggeries in AI field. This paper will explore how Artificial intelligence might help to give a real time feel in games and how it works. To help the reader so that they can understand the game AI subject, we also offer a timeline of game AI history.

II. Literature Review

In this chapter we will be discussing some of the major approaches that are being followed in Artificial intelligence in games. What are the problems associated in this technology.

A. History of AI

The year 1943 marked the beginning of Walter Pitts and Warren McCulloch's first attempt to build an advanced system. They showed a simulation of an artificial neural network's structure and claimed that if this structure was adequately described, an Artificial neural network could learn to think like a human. Alan Turing recently published "Computer Machinery and Intelligence".He conducted research on the topic of Artificial Intelligence in his book "Intelligence." The

examination configuration necessitates the use of a machine, a human assessor, a natural language generator, and a human. John McCarthy is credited with coining the term "artificial intelligence" for the first time. He created LISP exactly two years later.

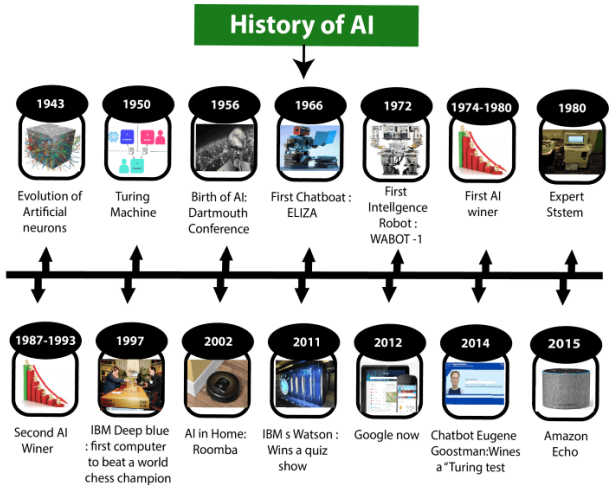

Fig. 2. History of AI

B. Applications of AI

Automobiles: Self-driving cars are created using AI technology. Cameras, radar, cloud storage, global positioning systems, and control signals can all work together with AI to drive a car. With the help of AI, features like automatic emergency braking, blind-spot monitoring, and steering support may be added to vehicles.

Facial Recognition: In order to guarantee safe access, modern electronic gadgets utilize facial recognition methods such as face filters for detection and identification. Facial recognition is widely used AI application, and it's already being put to work in some very secure settings across a variety of sectors.

Gmail: Gmail uses A.I. to filter out junk mail and protect users from scam emails (AI). By marking an email as spam or not, you are helping Gmail's AI learn to better identify spam in the future. Gmail's AI was trained by the millions of people who use the service today. Because of this, AI has developed to the point where it can recognize even the most covert spam emails that pose as legitimate correspondence.

Personalized shopping: We all buy so many things firm shops now days and visit thousands of stories. We purchase grocery firm online through websites and shop too. We have visual search option in shopping. the seller can convert customer interaction into a very meaningful experience like a visual search or a recommendation system. Recommendation system helps to improve the experience with customers what they want to purchase or what they like to purchase in future. this all happen with the help of artificial intelligence. basically, it works on the interface of the customer, it uses its past purchasing history, what it like, what it adds to cart, then it gathers all the information of user . and it analyse it search on its database then give a similar recommendation to the user this all work done by a recommendation system and due to this satisfaction user think that what they purchase is right.

III. Future Scope of Work in AI

Researchers believe that by the next decades, almost all new software products and services will use artificial intelligence capabilities, which will have a profound impact on our daily lives and the way we do business. Despite AI's relative immaturity, the technology has already shown its limitless promise in a wide range of fields, from manufacturing and retail to education and healthcare. It's expensive, time- consuming, and resource- intensive to implement AI in cyber security. Due to its higher cost compared to more conventional cyber security solutions, artificial intelligence (AI) in this field may not be a viable option in many cases. In the field of cybersecurity, there is no such thing as complete safety. Three components have been covered of game AI. The fact that Game AI includes a wide range of topics, some of them are unavoidably outside the scope of this study, makes it clear that this review is far from exhaustive. AI game is used to make game design, production, game testing, etc. it is used as application purposes. GGAI constrained to only a small number of games, and they are typically of the same type, in game AI research. That is to say, we have a long way to go in generalization of AI in games. With the help of this paper, we believe the readers will have a thorough grasp of the game AI field's present research directions and emerging trends. Game creators are constantly looking for fresh ideas and strategies to keep consumers interested and playing in the 200 dollars billion global gaming market. Developers are required to keep a constant eye on the market and research user behavior within their games in a field that is so competitive and dynamic. That would be incredibly manual and time-consuming task if done by people.

A. LIMITATIONS

- **Cost Effectiveness:** Not everyone can be benefited from AI due to its high price tag, that's why this field is still in development.
- **Cyber Threats:** Now more than ever, hackers pose a significant threat to your personal information and privacy. In the absence of adequate security measures, they would be able to effortlessly monitor your whereabouts and access your personal information.
- **Machine gaining control over humans:** This is one of the first AI safety concerns raised. Many films and novels have already addressed this topic. Preventative measures must be taken to avoid this
- **Loss of jobs:** Some research suggests that a large percentage of the labour force may lose their jobs by AI-powered

software and hardware, and this has led to concerns about the potential dangers posed by AI.

IV. CONCLUSION

The development of semi behavior is a topic that is now being studied and which traditionally has its roots in the renowned Turing test. The possibilities created by incorporating science into videogames are endless, including the incorporation of emotions in artificial players and the option to create a direct connection between them and the player's emotive perception through the use of what is known as Active Computing.

It has been shown that procedural content generation is a hot field in academia with lots of articles related to it. Additionally, the videogame industry successfully applies many of the technological improvements made in academia, despite the fact that there are still many problems that have not been solved.

We conclude our study by pointing out that there are many applications of computational and artificial intelligence that haven't been specifically covered here and where future research may find more difficulties, such as player modelling, computational narrative, and AI-assisted game design, among other things. Not only do we face interesting difficulties in the near future, but also in the present.

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