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FUTURE OF ANIMATION WITH ARTIFICIAL INTELLIGENCE

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ABSTRACT

Current world is dealing with Artificial Intelligence. Artificial intelligence is as new as Media itself riding on the wave of Artificial Intelligence, the results of Artificial Intelligence is to show the new scope in Indian Media. The term Artificial Intelligence was coined in 1956, but in present time it becomes more popular and it is all because of the technology. A question pops up will Artificial intelligence (AI) impacts the animation industry? Technology is increasing day by day and replaced many jobs that ran to competition within the market, because of Artificial intelligence (AI), will the role of animator remain the same?

Animation used to be a very difficult and time-consuming process. Cartoonists and animators had to draw each frame of a movie one by one. Is there a need to adopt new techniques to master the Media Production work with an Artificial Intelligence? Artificial intelligence (AI) is used in almost every field like the media industry, Cinema, cartoons, and animation, and many more. A question arises about how Artificial intelligence (AI) will be used in animation in the future. Whereas Disney is known for using Artificial intelligence (AI) to make storyboard animations just from text. Advancement in Technologies within the animation industry is a continuous process. Therefore, in this research paper researcher has discussed about the future of animation with Artificial Intelligence. Different methods of animations have been covered in this paper. It has been discussed how Artificial intelligence (AI) has affected animation and how modern animation differs from traditional animation. This paper has covered the main function of Artificial intelligence (AI) in animation.

Keywords: Animation, Artificial Intelligence, Media, Machine Learning, Technology

1. INTRODUCTION

From its origin, animation has advanced significantly. Many animation methods were created between 1895 and 1920 amid the expansion of the film industry. Animation techniques evolved, including stop-motion, puppets, clay, or cutouts, drawn or painted animation, Whiteboard animation, Typography animation, Rotoscope animation, Flipbook animation, 3D animation, and hand-drawn animation, mostly painted on cells, which predominated for the majority of the 20th century and came to be known as traditional animation.

As we are all aware, technology has replaced everything. Artificial intelligence (AI), or machine learning, has a bright future in many sectors, including the animation sector. Although animators are highly creative, it appears that their work is on the point of a radical transformation at the moment. But, Artificial intelligence (AI) won't completely replace people, instead animators' imagination will be enhanced. We all understand Artificial intelligence (AI) and animation individually, but have you ever considered how they interact? Artificial intelligence (AI) is a significant component of software engineering that focuses on creating clever computers that are prepared to carry out tasks that typically need human understanding. Artificial Intelligence techniques are becoming a fundamental part of technology usage. It aids in many people's cares.

Today, animation has developed into a multibillion dollar industry. Animation is used in different areas like TVs, movies, education, games, business promotion etc. More ways than one can imagine are possible for Artificial Intelligence to change the way we live. It continues to push the boundaries, especially in the area of animation and movement depictions, which significant advancement and long-term utility. With the technological advancement, the possibilities of animation became endless and it has a great future ahead.

2. LITERATURE REVIEW

Yang (2021) J. Phys.: Conf. Ser. 1744 032037, focuses on how popular artificial intelligence technology is at all animation-majoring colleges and universities. And it also tells us that how artificial intelligence makes animation much better and how it changes the mode of traditional animation. In virtual reality animation production to understand the application of Artificial intelligence (AI) technology in virtual reality, it is necessary to comprehend the popularity and teaching situation of Artificial intelligence (AI) in animation. It also shows that when Artificial intelligence (AI) is involved in virtual reality-based animation it improves the interactivity, immersion, illusion, and fidelity of animation.

Liu and Peng (2021) J. Phys.: Conf. Ser. 1881 032076, identifies the relationship between animation and Artificial intelligence (AI) and how Artificial intelligence (AI) improves the efficiency of animation. It examines the fact that human nature remains the foundation of animation created i n this era. In future the Artificial intelligence (AI) technology will help animation to create realistic things. It helps the animators to do the work in an easy way and has liberated an animator from repetitive work.

Li (2021), "Film and TV Animation Production Based on Artificial Intelligence AlphaGd", Mobile Information Systems, vol. 2021, Article ID 1104248, 8 pages (2021), examine that from one's point of view, it can speed up production and improve animation quality. On the other hand, it can raise the quality of animation production by realizing the pursuit of authenticity in animation production and giving the audience the impression that they are in an immersive environment.

Datta and Goswami (2021). "The Film Industry Leaps into Artificial Intelligence: Scope and Challenges by the Filmmakers." Rising Threats in Expert Applications and Solutions: Proceedings of FICR- TEAS 2020 (2021): 665-670, the article discusses that the power of Artificial intelligence (AI) is increasing day by day and in film industry it is growing very fast. The involvement of Artificial intelligence (AI) technology leads to the expansion in 3d. In the upcoming future algorithms will be used in animation and the quality of animation will be increases and viewers will view those films on home theater equipment.

3. RESEARCH METHODOLOGY

The purpose of the current study is to learn more about the relationship between artificial intelligence and the future of animation, including both the good and negative effects of Artificial intelligence (AI) on animation and the possibility that it may someday replace animators in the sector. As a result, the researcher has gathered information on these queries from a variety of journals, periodicals, papers, and websites. Analysis of secondary data was used to carry out the current investigation. Analytical and Descriptive (Fact-Finding) Research (existing information & analyzed to form critical assessment). Wu and Yang (2021)

4. OBJECTIVE OF STUDY

1) To obtain knowledge about the future of animation and its relation with Artificial intelligence (AI).

5. ANALYSIS & INTERPRETATION

To obtain knowledge about animation and its relation with Artificial intelligence (AI).

In the upcoming years' animation industry will be changed significantly. In the past time animation is done in pages and all the things are hand drawn, but with the advancement in time and technologies animation has reached to a level where the audience can feel the real touch of the characters and environment. Animating a character can be completed by some Artificial intelligence (AI) based software that can handle all the individual tasks. These software programs are capable of auto rigging, facial expression generation, predefined animations from which we only need to choose the character and it will perform accordingly and many other things.

Tools of animation and its relation with artificial intelligence:

1) **Cascadeur AI-assisted tools:** 3D animation is popular right now. Cascadeur Software, which has Artificial intelligence (AI) assisted tools and allows users to change the major control points while the Artificial intelligence (AI) positions the rest of the body automatically, is one example of one of the numerous new technologies that can replicate the transitions between keyed poses for the animator. Cascadeur may be easily integrated into practically any animation process because it supports .FBX and .DAE files, including those used by Unreal Engine, Unity, Daz3D, Maya, Autodesk 3Ds Max, Mixamo, Blender, Houdini, and Cinema 4D.
2) **Adobe Introduced AI-powered Character Animator:** Speech-Aware Animation and Lip Sync are examples of software that combines live motion capture with a recording system to control 2D puppets created in Photoshop or Illustrator. Using Adobe Sensei, a cross-platform machine learning engine, to integrate Artificial intelligence (AI) and use algorithms to produce animation from recorded audio and align mouth motions for speaking sections. When it comes to machine learning in animation, we must train the Artificial intelligence (AI) on what is satirical and how the characters should behave. With a camera and microphone, the puppet may be animated in real time after being constructed.
3) **Auto-Rigging AI tool:** Rigging and animations may now be produced more automatically because to recent developments in machine learning (ML). Deep learning-trained animation tools reduce the amount of time needed

for creating motion variables and painting weights. A firm called Mixamo provides a well-liked Auto-Rigging technology that enables users to upload their 3D models, mark them with certain markings, and instantly receive a 3D mesh rig with estimated skinning weights. 90 percent of what animators generally expect from the rigging is made by the service that takes just 2 minutes to finish the operation. Animators may edit the file after the job is finished by adding new bones and changing some weight positions.

4) **3D characters by assembling customizable body parts, clothes, and textures:** Modern 3D characters are sophisticated and lifelike protagonists with a broad range of distinctive attributes, such as hair, dress, and facial expressions, rather than simply geometric shapes. By combining interchangeable body parts, outfits, and textures, users of the Adobe Fuse 3D character designer programme may construct their own distinctive 3D characters. The system offers more than 280 customizable qualities that take a wide range of game design use cases and objectives into account.
5) **Norah's Motion Editor AI driven approach:** Current developments in deep learning and synthetic generative models promise to increase the functionality of animation technologies already in use. Norah AI, a ground-breaking animation tool just introduced by startup Absentia, ushers in the Artificial intelligence (AI) age for the animation and game design industries. With the least amount of human involvement, it enables the rapid generation of all game assets, including 3D models and animations, game geometry, plotting, and texturing. The Auto Rig tool, human motion simulation and mixing, and Motion Editor in Norah AI's initial release support a wide range of user cases in 3D animation and game design.
6) **Automating the task using AI:** The game business is where animation is used the most extensively. Animation is used to create the limitless virtual environment and all 3D characters. Digital characters are being taught to execute complicated motor skills like parkour, dance, sports, and martial arts by Deep Motion utilizing the Motion Intelligence platform and a cloud-based machine learning pipeline. The creation of video game animation is being revolutionized by this new technology.
7) **3D Animation in the medical industry:** Researchers are using artificial intelligence to produce 3D animation models more quickly and efficiently. The use of Artificial intelligence (AI) based 3D animation in the medical sector for surgical training and patient care is one real-world application. Professionals and medical students can visualize the specifics of human anatomy thanks to 3D animation. Holographic technology allows all actual items and animated objects to appear to float in midair.

A Question arises that how Artificial intelligence (AI) will be used in animation in future?

- The production process is one area where Artificial intelligence (AI) in animation can be seen. Some tasks, like creating backgrounds or crowds of characters, can be automated using Artificial intelligence (AI) based calculations. In addition to saving them time, this allows animators to focus on other aspects of animation that require creativity and talent from the animators themselves.
- Character design is another way Artificial intelligence (AI) is used in animation. Artificial intelligence (AI) algorithms are capable of producing a

wide range of character designs, from fantastical creatures to humanoids. As a result, animators are now able to design characters that were difficult or impossible to do before.

Does Artificial intelligence (AI) Replace Animators in Future: It is undeniable that Artificial intelligence (AI) has progressed across a wide range of industries and has the capacity to automate particular tasks and enhance business procedures. However, it is unlikely that Artificial intelligence (AI) will completely replace animators anytime soon. While Artificial intelligence (AI) can assist animators with specific tasks such as character rigging and motion graphics creation, it cannot replace animators' imagination and artistic ability. The application of Artificial intelligence (AI) technology in the animation field is growing but it can't resist for too long because at the end of the day everyone wants uniqueness and original concept. Artificial intelligence (AI) can help us in reducing our work stress, but it can't replace the animators. While creating an animation we need to follow some steps. In this process while animating a character we have to dissect it into different parts.

Figure 1

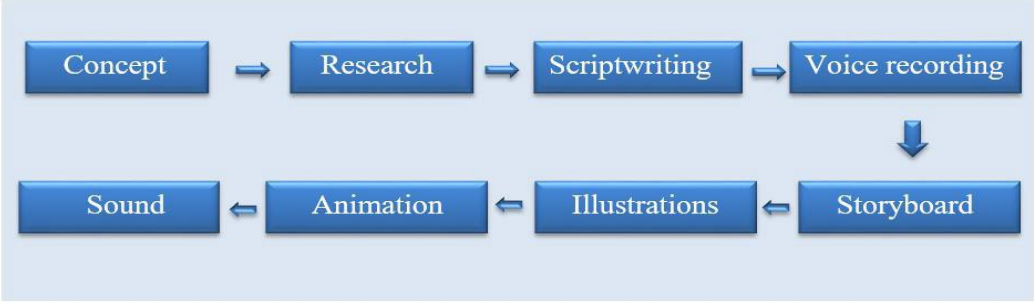

Figure 1 Process of Animation
Source Created by Researcher

1) Advantages of Artificial intelligence (AI)

- **Helps in finding reference**

As designers, whenever we consider a design or a concept, we need a reference from which we produce an output. Finding references can be very challenging at times, so Artificial intelligence (AI) came up with a solution and developed a program called DALL-E 2 that makes it easier to generate images using the user's provided keywords.

- **Increase the speed and saves time**

When it comes to animation, the process of creating a character, rigging it, lip-syncing it, and then animating it takes a lot of time. However, the development of technology has reduced our time requirements and increased our productivity. With the aid of a camera and a smartphone, we can record the audio and have our characters lip-sync to the audio using a program called Adobe Character Animate. This process saves our time and energy.

- **Gives entry to the beginners**

Artificial intelligence (AI) will assist those students to develop their interest in animation if they want to do it but don't know much about it. With the aid of Artificial intelligence (AI), character animation is made simpler and viewers are given a slightly clearer understanding of the story.

2) Challenges of Artificial intelligence (AI)

- **Loses Originality**

When we discuss artificial intelligence, we are referring to a device that can facilitate our work. There won't be any originality left in the work if everyone starts using Artificial intelligence (AI), Because Artificial intelligence (AI) only has a limited amount of data that was filled out by people. There won't be any originality left for them.

- **Emotional Touch**

While animating any character, an animator considers the character's potential emotional connection with the audience and how that connection will affect their audience. If the work is done by Artificial intelligence (AI), however, there will be perfection in the work but that potential emotional connection won't be there.

Will The Role of Animator Remain the Same: The role of animator will remain same but the work pressure will be decreased because of Artificial intelligence (AI). Artificial intelligence (AI) has given animation new life and increased its value by introducing more inventive and creative ways to create art. For instance, using Artificial intelligence (AI) in animation can result in lip-syncing, more realistic character movements, and more lifelike backdrops. In addition, Artificial intelligence (AI) applications significantly reduce the amount of time it takes to complete tasks, tasks that previously took days can now be finished in a matter of hours. Due to all of this, animators have more time to work on creative tasks, such as developing original ideas and concepts, rather than tedious, repetitive work. Additionally, as businesses turn their focus to the creation of increasingly compelling creative content, animators' futures appear more promising than ever.

Will The Animation Industry Impact Because Of Artificial intelligence (AI): Artificial intelligence (AI) is capable of performing some jobs rapidly, but more challenging ones, like giving a virtual persona a real appearance, necessitate specialized training. Without needing to spend time redacting frames one at a time, creative artists might focus on other exciting jobs. We automate animation using powerful computer techniques to reduce costs. By doing this, we will be able to focus on more crucial responsibilities, such as producing beautiful visual effects.

6. FINDING

1) The production process is one area where Artificial intelligence (AI) in animation can be seen. Some tasks, like creating backgrounds or crowds of characters, can be automated using artificial intelligence-based calculations. In addition to saving them time, this allows animators to focus on other aspects of animation that require creativity and talent from the animators themselves.
2) Character design is another way Artificial intelligence (AI) is used in animation. Artificial intelligence (AI) algorithms are capable of producing a wide range of character designs, from fantastical creatures to humanoids. As a result, animators are now able to design characters that were difficult or impossible to do before.
3) While Artificial intelligence (AI) has the potential to significantly affect the future of the animation sector, it is unlikely to completely replace human animators. Increasing creativity and productivity are two advantages of Artificial intelligence (AI) that animators may experience.

7. RECOMMENDATION

According to the study, while Artificial intelligence (AI) won't entirely displace jobs, it will help animators advance and enhance the precision and accuracy of their work. I initially believed that Artificial intelligence (AI) would replace animators when I began my research on this subject, but my perception however, has totally altered as a result of the research. Since the Artificial intelligence (AI) is ultimately a machine created by humans, it is up to us to defeat it. With the aid of Artificial intelligence (AI), we should be able to determine when and how much work is required to be done by it. What must we do manually or through Artificial intelligence (AI) in order to ultimately produce a unique and better result.

8. CONCLUSION

This paper examines the issues surrounding how artificial intelligence affects the animation industry and whether it will eventually take over the industry and replace animators' jobs. Artificial intelligence (AI) won't be able to completely replace animators in the near future, but it will enable the sector as a whole to improve productivity. The discoveries after the examination are that artificial intelligence cannot replace the illustrators in the forthcoming future yet it will help the artists or the business to in improving of the work and accomplishing the work quicker than expected. It has both positive and negative effects, but how each person reacts is entirely up to them. For instance, if we talk about Artificial intelligence (AI), there is a possibility that the finished product will not have any originality or emotional resonance. On the other hand, if the animator is aware of how to properly utilize the software and how much work is required of him or her with it, there will not be a single issue, and Artificial intelligence (AI) will be a powerful tool for animators and boost the animation industry to new heights.

CONFLICT OF INTERESTS

None.

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REFERENCES

Datta, A., and Goswami, R. (2021). The Film Industry Leaps into Artificial Intelligence : Scope and Challenges by the Filmmakers. Rising Threats in Expert Applications and Solutions : Proceedings of FICR- TEAS 2020, 665-670. https://doi.org/10.1007/978-981-15-6014-9_80.

Li, Y. (2021). Film and TV Animation Production Based on Artificial Intelligence AlphaGd. Mobile Information Systems 2021, 1-8. https://doi.org/10.1155/2021/1104248.

Liu, Q., and Peng, H. (2021). Influence of Artificial Intelligence Technology on Animation Creation. Journal of Physics : Conference Series. IOP Publishing, 1881(3). https://doi.org/10.1088/1742-6596/1881/3/032076.

Wu, X., and Yang, F. (2021). A Study on the Development of Computer-Aided Design in the Context of Artificial Intelligence. Journal of Physics : Conference

Series. IOP Publishing, 1982(1). https://doi.org/10.1088/1742-6596/1982/1/012033.

Yang, Y. (2021). Application of Artificial Intelligence Technology in Virtual Reality Animation Aided Production. Journal of Physics : Conference Series. IOP Publishing, 1744(3). https://doi.org/10.1088/1742-6596/1744/3/032037.