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DIGITAL HUMANS IN THE GAMING INDUSTRY: THE ROLE AND IMPACT OF AI IN VIDEO GAMES

Artificial intelligence is the modeling of human intelligence processes by machines, especially computer systems; specific applications of AI include expert systems, natural language processing, speech recognition, and machine vision.

How does artificial intelligence work? As the hype around AI grows, it is increasingly difficult for vendors to talk about how it is used in their products and services. Often what is called AI is one element of a technology, such as machine learning; AI requires specialized hardware and software to create and train machine learning algorithms; no single programming language is synonymous with AI, but Python, R, Java, C++ and Julia are popular among AI developers.

In general, AI systems work by taking large amounts of labeled training data, analyzing it for correlations and patterns, and using those patterns to predict future states.For example, a chatbot can learn to create a realistic dialogue with a person using text as an example, and an image recognition tool can learn to identify and describe objects in an image by looking at millions of examples.New rapidly developing generative AI technologies allow for the creation of realistic texts [1].

Recently, the gaming industry has received a huge amount of new technologies and it is especially visible in the field of artificial intelligence. One of the most intriguing developments within this field is the emergence of digital humans. These virtual characters, created using sophisticated AI algorithms, have the potential to revolutionize the gaming experience.

In order to use AI for this industry, it is necessary to study all its pros and cons, because for a certain stage of development may not need the use of artificial intelligence, and may even harm the process. Everyone knows that AI gives businesses an edge. The Appen State of AI Report for 2021 says that all businesses have a critical need to adopt AI and ML in their models or risk being left behind. Companies increasingly utilize AI to streamline their internal processes (as well as some customer-facing processes and applications). Implementing AI can help your business achieve its results faster and with more precision.Advantages: Reduction of Human Error and Risk One of the primary benefits of adopting AI is its ability to minimize human error and the associated risks. As the Enlightenment poet Alexander Pope once said, "To err is human…" It's a fact of life that everyone makes mistakes from time to time. While this isn't always detrimental, it can be when consistency is key. Employing AI, especially for repetitive tasks, can help avoid human error from spoiling an otherwise excellent product or service.

Constant Availability Unlike humans who typically work 8 hours a day, AI systems are accessible around the clock. Machines can operate day and night, and AI-driven chatbots can offer customer support even outside of regular business hours. This capability enables businesses to increase their productivity and deliver a superior customer experience than what could be achieved by humans alone. And now we will study the disadvantages of implementing AI in the development process. Lack of Emotion and Creativity: AI is its lack of the human ability to use emotion and creativity indecision making. Lack of creativity means that AI cannot create new solutions to problems or excel in overly artistic areas. According to one scientific paper,at the current stage of AI development, it can be programmed to generate "novel" ideas, but not original ones. According to this

paper, until AI is able to generate original and unexpected ideas, it will not overtake humans in creative ability and will hinder decision-making. If a company is looking for a new or creative solution to a problem, humans are better able to provide that solution. No Improvement through Experience: Similar to the above point, AI cannot naturally learn from its own experiences and mistakes. Humans inherently learn to avoid repeating the same mistakes. However, it is very difficult and expensive to create an AI that can learn on its own. Ofcourse, thereare AIs that can learn. The most prominent example is AlphaGo, a program developed by Google. AlphaGo taught itself the game of Go, and within three days began devising new strategies that humans have yet to come up with [3].

Having learned all the positive and negative sides, the last step is to study the impact of AI on the gaming industry as a whole and on the process of model creation. AI has had a profound impact on the gaming industry, transforming the way games are developed, played, and experienced. One area where AI has made significant strides is 3D modeling. Traditionally, creating realistic 3D models required extensive manual labor and expertise. However, AI algorithms can now generate highly detailed and accurate models with minimal human intervention, saving time and resources for game developers. AI has played a crucial role in reducing staff requirements in game development. Tasks that were previously handled by large teams, such as character animation, facial expressions, and voice acting, can now be automated through AI algorithms. This not only streamlines the development process but also reduces the need for extensive human labor, ultimately making game development more efficient and cost-effective.

Ubisoft Introduces "Ghostwriter" AI-Powered Video Game Dialogue Generator.

Games aren't getting smaller, instead, studios are pushing the scale and limits with each new release. This means that thousands of lines of dialogue have to be written for specific characters. This can be time-consuming, expensive, and at times, slows down the development process by pulling writers from other tasks, but this is where Ghostwriter from Ubisoft comes in. Back in March, the studio introduced this new AI in a bid to control the resource costs of creating massive amounts of dialogues for open-world games. That chatter heard in the background is a key element of immersing a player in the environment. Think of games such as Cyberpunk 2077, The Wicher 3: Wild Hunt, and of course Skyrim. So the way Ghostwriter works is that narrative writers input characters and the type of interaction they're looking to create within the program. Then, using machine learning, product variations of dialogues are reviewed by the writers. This speeds up the development process as it makes it much easier to create tens of thousands of pieces of dialogue [4].

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