HOW MACHINE ELARNING AND AI ARE TRANSFORMING INDUSTRIES?

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**How Machine Learning and AI are Transforming Industries?**

**INTRODUCTION:**

**Over the last few years, Machine Learning and Artificial Intelligence (AI) have taken over the world. Machine Learning and AI both of the technologies have transformed various industries and revolutionized the way people live and work. From finance to healthcare and education to marketing machine learning and AI has drastically changed the system.**

**WHAT IS Machine Learning and Artificial Intelligence (AI)?:**

**Artificial intelligence is the capability of a computer system to mimic human cognitive functions such as learning and problem-solving. Through AI, a computer system uses math and logic to simulate the reasoning that people use to learn from new information and make decisions.**

**One of the main applications of AI is Machine Learning. It’s the process of using mathematical models of data to help a computer learn without direct instruction. This enables a computer system to continue learning and improving on its own, based on experience.**

**One way for computers to mimic human reasoning is through neural networks. Neural networks are a subset of machine learning models inspired by the structure and functioning of the human brain.**

**INDUSTRIES BEING TRANSFORMED:**

**.HEALTHCARE:**

**Machine Learning and AI is mainly used in healthcare to diagnose diseases. Doctors and other medical proffesionals use these technologies to analyze very large and vast amount of patient data for better diagnosis and more personalized treatments.**

**For example Google has developed an algorithm that can detect breast cancer based on images. The algorithm is not designed to replace radiologists, rather help them with the detection of any for of cancer cell. This AI system will bring mammography(x-ray imaging method used to examine the breast for the early detection of cancer and other breast diseases) to ore people around the world, mainly in the areas where people don't have adequate resources.**

**Machine Learning and AI can also be used to predict a patient's risk of developing any sort of disease in the future so that the patient can start taking precautions early on. Developing new treatments and drugs/medications for diseases is also happening.**

**Machine Learning and AI has evolved the healthcare organizations and will continue to do so. Hopefully in the near future with all these technologies the healthcare organisations can speed up the process of treatment and in also in a lower and more affordable price so that more and more people can have these facilities.**

**EDUCATION:**

**Machine Learning and AI are revotunialising the educational sector. AI and ML based technologies are taking over and becoming more and more mainstream as the days goes by. One of the main reasons of these technologies are taking over is that they are way more interactive. For example, nowadays if we need to learn about a topic, we don't tend to go and read a book about it, instead, we search for the topic on search engines. I won’t say that the days of learning by reading books and writing articles and texts for the class are coming to an end. But it seems to be an obsolete learning medium.**

**AI and ML can go through vast amounts of a student's data and detect his/her weaknesses and strengths and can help in preparing a more personalized plan for the student by delivering contents and resources that are tailored to their needs. That will also improve one on one tutoring for both the teacher and the student.**

**There is also a huge growth in virtual classrooms and online learning platforms. One of the main reasons for their growth is that they are very interactive with the students. There are AI based chatbots that can solve any of the queries of the student anytime the student wants.**

**Although AI has taken over the educational sector and will continue to do so, we have to mention some of the drawbacks of this. Students will now be spending more and more time in front of a screen and some of them might even get addicted to the gadgets they are using. It is the responsibility of the parents, teachers and also the platforms to minimize or control the amount of time the students spend in front of their screens.**

**FINANCE:**

**In the last few years, the application of AI and ML has spread all over the finance departments. It used to be only used by hedge funds but nowadays banks, fintech and insurance forms all are using it.**

**The finance industry including the banks, trading and fintech firms all are implementing AI and Machine Learning models and algorithms to automate time consuming and offer more and more personalised features to the customers.**

**The finance industry uses the technologies to extract meaningful insights from raw data sets and provides accurate results. Which is then used to solve complex and critical problems in the finance sector.**

**The trading firms use AI and ML in algorithmic trading. The computer algorithms take high speed trading decisions based on the previous market data.**

**The technologies are also used for investment purposes. AI models are used to analyze market trends and company fundamentals to predict potential investment opportunities.**

**These are just some of the use cases of AI and ML in the Finance industry. There are many more reasons why AI and ML are used, fraud detection is also a major use case in this industry. It is fair to say that the Finance industry is making the most out of these technologies and will continue to do so. From hedge funds to now used in almost every major bank, AI and ML have truly changed the industry.**

**CONCLUSION:**

**Machine Learning and AI have transformed numerous industries, revolutionizing the way we work, interact, and live. From healthcare to finance, education to manufacturing, these technologies have brought about unprecedented advancements, efficiency, and innovation. The impact of Machine Learning and AI can be seen in personalized healthcare treatments, in manufacturing, personalized learning experiences in education, and intelligent financial decision-making, among many others.**

**At the end of the day as we move forward, it is essential to recognize the potential of these technologies while acknowledging their limitations. While AI can automate repetitive tasks and analyze vast amounts of data at a speed beyond human capabilities, it should not replace human expertise, creativity, and empathy. Rather, it should be viewed as a powerful tool that complements human skills and intelligence.**