ARTIFICIAL INTELLIGENCE MULTIDIMENSIONAL IMPACT APPLICATIONS ACROSS DIVERSE FIELDS

Abstract

A disruptive era has begun with the rapid progress of Artificial Intelligence (AI), bringing with its unmatched accomplishments and complex impacts across numerous industries. This chapter explores the multifarious impact of AI applications, highlighting their various uses and ramifications in industries like manufacturing, healthcare, finance, and education, among others. With the use of predictive analytics, image recognition, and personalised medicine, artificial intelligence has entirely altered patient care, treatment regimens, and diagnostic procedures. AI algorithms are used by the financial sector to improve decision-making processes through risk assessment, fraud detection, and portfolio optimisation. AI in education makes it easier to personalise lessons, conduct adaptive tests, and enhance the use of educational resources while meeting the needs of each individual student. AI-driven automation, predictive maintenance, and supply chain optimisation have improved productivity and accuracy in the manufacturing sector. AI has also aided in scientific research advancements by enabling data analysis, recognising trends, and simulation models that quicken the rate of discovery. Artificial intelligence is having an immediate social influence in places like smart cities, where it is used for energy optimisation, traffic control, and public safety. The chapter emphasises the necessity for interdisciplinary methods in order to fully utilise the potential of AI technology, as well as the collaborative synergy between AI and many fields. Through an analysis of the various uses of AI, this research helps to build an in-depth understanding of the ground-breaking effect that AI has on various industries, opening the door to wise decision-making and advancement in the future.

Keywords: intelligence, predictive, optimization, productivity, healthcare

Authors

Dr. R. Saranya
Assistant Professor
PSG College of Arts and Science
Coimbatore, India.

A. Maria Madonna
UG Scholar
PSG College of Arts and Science
Coimbatore, India.

I. INTRODUCTION

Artificial intelligence refers to the concept of a machine doing a human's work. Digitalization and artificial intelligence are the most intensively discussed topic in real estate industry. In this fast evolving world no man denies to use a technology that makes his work easier. In the beginning, people just wanted to know what AI is all about but later they understood its Liability and its vantage and started to explore more about it (Hindu editorial 24 JAN 2022). Researchers created a new technology with their knowledge but it is actually a technology that invokes human intelligence in various situations and handles the situations more clearly and precisely than a man can do. Also it helps India to get top listed in the developing countries.

1. Field Usages

- Defense
- Health
- Agriculture
- Medicine
- Trade
- Transport
- Business
- Sports

Since AI is involved in these kinds of sectors it makes India **"A global hub for AI"**

II. AI IN DEFENCE SYSTEM OF INDIA

Surveillance and reconnaissance can use AI powered drones in order to monitor things in defense system by ensuring the peoples safety. The digitalized drone can contain an alarm system so that it would immediately convey the information to the monitoring officials when and invalid or illegal move is made. AI can also provide immense support and stand by the soldier's side in order to protect them and to work more ethically in the battle field. It might also be used to make decision making in the battlefields and it can also give an astute move at times when necessary. Also AI can be used as a virtual guider that helps to train the people to perform the best defense. AI based robots can also be used in battle fields which substitutes a human soldier the main advantage of implementing an AI based robot in battle field will prevent the soldiers from severe and adverse injuries. Ammunition and Arms AI-enabled technology is now incorporated in new-age weaponry. Advanced missiles, for example, can estimate and examine the target level for kill zones without the need for human participation.

Advantages

- **Better threat identification**: AI can help analyse large amounts of data and detect patterns, anomalies, and potential threats faster and more accurately than humans.

- **Reduced staff requirements**: AI can automate some of the tasks that would otherwise require human operators, such as surveillance, logistics, network traffic analysis, etc. This can reduce the workload and risk for human personnel.

- **Improved recruiting**: AI can help in screening and selecting candidates for the defence forces, as well as providing training and feedback.

- **More preparedness**: AI can help in simulating scenarios, planning strategies, and testing outcomes before engaging in real operations. This can improve the readiness and effectiveness of the defence forces.

- **Enhanced cybersecurity**: AI can help in detecting and preventing cyberattacks, as well as responding to them in real time. AI can also help in encrypting and securing communication systems.

- **Smoother transportation**: AI can help in optimizing routes, managing traffic, and coordinating vehicles for the defence forces. AI can also enable autonomous or semi-autonomous vehicles that can operate in challenging environments.

1. **AI in Health Care:** AI plays a very important role in the health care of India it improvises various methods in the medical technology. For example, performing an complicating operation in a grape fruit similarly the AI infused robots are used to perform very complicated surgeries in a very delicate manner. Using the help of AI can also diagnose the patients behaviour, heart beat rate, blood pressure, white blood cells, platelet counting and lot more. AI also helps to diagnose the disease and the level of the disease using the photographs. Predicting various life threatening diseases so it would be easy to prevent it earlier. We all know the difficulties that we faced during the pandemic covid -

19 in such kind of situations AI would be more bitterly used which would have saved lots of life. Also we can use AI based robots for cleaning purpose so that it would make the more easier and can prevent people from coming in contact with the infectious diseases. This covid -19 pandemic made us to realize the importance of the arterial support which could be provided by the robots and other AI infused machines and technologies.

Advantages

- Since healthcare is one of the most important sectors AI can be used to better the treatment and to improve more carefully handling.
- AI can be used to perform safe operations
- Used to take care of the patients and to monitor their health each and every minute
- Can be used to design health treatment problems
- Fast in diagnosing health status and reports.

2. **AI in Agriculture:** Artificial intelligence plays a very important role in agriculture. Agriculture sector is also an important sector in India which feeds the people all over the world.AI can be effectively used in such kind of sectors so that it would improve certain things and would benefit the people in various ways. Particularly the AI can be used to check the quality of the crops or food items that has been produced. Similarly we can also use AI to spray pesticides onto the plants which would protect the plants from insects as well the humans from severe skin and respiratory infections. Also the artificial induced robots can be used to monitor the crops also we can use an digital camera induced robots and other devices will also monitor the various birds travelling across the globe with which we could come to know more about the species. When compared to other countries Indian agriculture is still being developed when compared to the other countries so in order to increase the productivity we can used the AI technology to test the fertility of the soil to test the moisture content, water availability, type of crop it can hold and lot more.

Advantages

- To unlock the full potential in agriculture sector using robots.
- To reduce overuse of water and savage use of pesticides not exceeding the prescribed level.
- To preserve soil fertility.
- To increase output and to enhance product quality.
- Helps to identify pest attacks and plant health problems.

3. **AI in Medicine:** AI helps out in various ways in the field of the medicine logically the AI based technology can be used to draft a analytical report on how to improvise the health of a person.AI based robots can be used to try out and to explore more about new drugs which would benefit the human society in multiple ways. Also it would be helpful in testing the medicines in order to check the succession rate. It can also be used to generate the prescriptions in case of the absence of the doctor. Also in the medicine field the AI induced machines can be used to visualize the positions of various parts present in our body. We can also use to make a list of the medicines that is being frequently used by the patients.AI can be used to give the health guidelines based on the persons current health status. Also it makes the procedure of taking an X-ray very faster so that the patient could be immediately treated.

Advantages

- Test can be done using an AI infused human model/robot.
- Analyses of the data can be done easily and quickly.
- The time taken for research purpose can be reduced.
- It is used to check for the proper proportion of components to be present in the medicine.
- It can be used to provide accurate solutions for the disease found.

4. **AI in Trade:** The use of artificial intelligence can bring out new innovations in trade can also stand as an supporting factor in order to support the ideologies and plans of the young entrepreneurs involved in trade. Earlier the investments based decisions was made by the traders depending on the stock analysts and researchers but now we can use AI to take several decisions and accomplish it in a right manner. These researchers spend more

time in analysing the stocks and to predict the right time for the investment. Later on in order to avoid these problems the online platforms were introduced in 2000's to improve the trade. These online platforms for investment and to do trade paved way to completely cut off the expense which has been as the brokerage fees. Using this AI based technology we can provide the relevant information to the investor in a very less time. India now boasts its first-ever AI-powered trading platform to offer predictions and signals for individual stocks. The availability of AI-powered trading platforms in India has democratised trading, enabling retail investors to utilise analytics and make informed decisions regarding stocks, sectors.

Advantages

- Ensures easy communication between the investors and seller.
- Ability to complete a complex process in a very easy manner.
- Can be used to share the information in various geographical levels in order to attract the investors.
- It can work without any timeline that is can accomplish a task 24/7.
- Higher speed in providing the suggested or the accurate details to the stock market investors.

5. **AI in Transport:** AI infused technology can be used to improve the transportation facilities. This technology can be used to drive the vehicles without the help of the human. The autonomous vehicles can be driven using sensors, camera, algorithms which are specifically designed to operate it without the help of the humans. Self driving cars have become one of the interesting practices in the western countries. These AI technologies can be used to detect the weather conditions during driving they do it is better than the humans do. These technologies also suggest the drivers to take or to travel through an alternate route during heavy traffic times. If the traffic is higher AI suggest a new alternate route so that the people can reach their destination on time. Artificial intelligence is used in cargo ships to improve the transportation. Rolls Royce has decided a partnership with Google to integrate AI in cargo ships. A new development in this field is the drone taxis. Drone taxis are autonomous aerial vehicles that aim to transport people from one place to another.

Advantages

- Route optimization.
- Vehicle tracking.
- Predictive fleet maintenance.
- Traffic management.
- Self driving vehicles will reduce the driving of human.

6. **AI in Buisness:** The business field is one among the fields which uses the artificial intelligence very widely. It helps in business processes and it users the analysis report in order to draw the customers. Cyber security is also used in the field of business in order to protect the data and to restrict the data of who can use it. We can use the AI in order to get to know about the various needs of the people or the customers who invest or buy products from a particular company. The marketing for the business can also be done using the help of AI. It also protects the companies from various scams.

The AI technology can be used to analyse the various issues and risks involved in the business and it also provides certain ways to handle the problems in a very skilled manner. AI based robots can be used to manage the planning strategy. It also helps to segregate the consumers as per their interest on various products. Analysing the customer satisfaction and working accordingly in order to improvise the consumption of the customers. Increasing the quality of communication with the customers. Recommendations of the products based on the interest of the people.

Advantages

- Marketing
- Improvised customer services
- Quality assurance
- Finance management
- Understands customer behaviour in a better ways

7. **AI in Sports:** AI is used in the sports field to various jobs that is the ai does multitasking in the field of sports. One of the interesting jobs that are done by using AI in this field is the umpiring. This technically implied umpiring prevents many sorts of forgery in umpiring. AI infused robots can be used to give specialised training to the players separately by identifying the unique talents within them. It can also be used to schedule diet charts to the players as per the required amount of calories by scheduling the food chart to each person individually.

It can also be used to provide first aid and plays a very important role in the injury treatment. Used to draft a strategically game planning and gives various ideas on how to proceed further in complex situations. Analysis the pre played games and drafts certain ideologies to improvise the game further in a more efficient manner. It can also be used for advertising the details of the sponsors for the game. Used to have a closer look of the move of the opponents so that the game can be played more skill fully after the analysis. Helps in detecting the fouls committed during the game. AI in healthcare can be used in this sports field in order to monitor the health conditions of the persons or to monitor the person who has been injure during the game.

Advantages

- Improves training and competition.
- Provides diet plans in order to maintain the health.
- Enhances the safety of the players and better injury prevention.
- Improves the strategy development.
- Maintaining fitness and health.

Thus through this book chapter we come to know that artificial intelligence is used in our day to day life and is a part of our life and it helps and supports us in various ways. Thus these AI technologies have to be used efficiently in a safe manner in order to have a better outlook towards it.

III. CONCLUSION

In this exploration of "AI" across diverse fields, it becomes evident that "AI" is an abbreviation that transcends the boundaries of artificial intelligence and applies to a multitude of domains. Whether it signifies the Automotive Industry, Agricultural Innovations, Aviation Industry, Analytical Instrumentation, Automated Manufacturing, Algorithms and Information, the Audio Industry, Atomic Interactions, Astronomical Imaging, or Alternative Investments, the versatility of "AI" showcases its significance in various realms. These references demonstrate that "AI" serves as an abbreviation that can be adapted to address the specific needs, challenges, and advancements in a wide array of fields, thereby underlining its importance in multidisciplinary contexts. As different industries evolve and innovate, "AI" continues to be a dynamic and adaptive term, reflecting the ever-expanding landscape of human knowledge and technological progress.

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