

Technological Intersection to the future of human life with Artificial Intelligence

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Abstract: Artificial intelligence (AI) and machine learning are the two terms that are buzzing around the world and indeed make a significant impact on human life. It affects various aspects of human life attributes like healthcare, environmental, education, and E-commerce. Artificial intelligence is capable of doing things that were once impossible to imagine before the invention of computers. The basic motivation behind this paper is to study the impact of Artificial intelligence on human life in recent years. The first area where its impact is significant is the healthcare, in which we can satisfy all its attributes in terms of more responsive, cost-effective and fast in diagnosis. In order to empower education, equality is the major parameter but due to the economical and geographical barrier it is very difficult to provide equality in the education. But due to fast scientific development in AI and machine learning it has enabled to build great promise to the education sector in terms of digitally enabled classrooms, cloud-based content, EBooks etc. Today global environment condition is in bad shape due to the increase in population, pollution, and industrial waste, hence we require potential strategies and solution to tackle it. Artificial intelligence and sensor technology can provide a unique solution to the world environment in coming future. Area of E-commerce is almost covered by application of Artificial intelligence due to responsive, safe in use, , highly accurate and cost-effective techniques. Up to 2020, artificial intelligence can provide complete technical intersection to all the attributes of human life, but there are many issues that should be tackled by researcher and developer such as Bias, accuracy, and data transparency, legal and ethical issues.

Keywords: Artificial intelligence, human life, education, environment, healthcare and e-commerce, machine learning.

INTRODUCTION

Today entire human life is under technical advancement due to Artificial intelligence. Artificial intelligence had a lot of ups and down from the last six decades, but due to big data technology now AI has become a powerful tool in many areas of human life. Education is one of the important backbone of any nation's growth. With the help of AI, we can provide better educational goals like personalized learning, collaborative learning, and equality in education on international platforms, virtual classrooms or tutorial systems and reduce economical Burdon on parents and government sectors [1-4]. Health care is another major area of economic and social growth of the nation. Ideal health care always requires four major attributes like fast in response, accuracy, cost-effective and fast in diagnosis. First derivative applications of AI shows great promise to the healthcare industry and in 2020 we will come across the technical intersection of AI with healthcare. Due to enhancement in sensor technology and machine learning we can collect data of human body parameters like face abnormality, activity monitoring, blood glucose level, energy expenditure, MRI, CT scan data from the sensor and provide this information to the

deep learning or machine learning algorithms and predict the illness with better accuracy [5-15].Rapid growing world population, industrialization and climate changes are creating more pressure on resource deficiency in coming years. Researcher and scientific advancement of AI can provide a more unique solution to the environment for predicting earthquakes, wildfires, and cyclones which may cause mass flooding and property damage. We can predict all the natural disasters with the help of machine learning, sensor technology, and IOT. Water contamination, cleanliness of river, conversion of seawater into drinkable water are the most promising area for future AI researcher. With the help of machine learning and deep learning, we can predict and make a necessary potential policy against environmental changes [16-18]. Due to increase in database, the most important challenge to the modern business community is to develop a data-driven application to convert big data into business value. As a result of technical advancement in natural language processing (NLP) and machine learning, E-commerce has become the most developing area of artificial intelligence. Most popular application of Artificial intelligence in the field of E-commerce is a chatbot, recommended system, automated warehouse, search engine, and AI security application. This

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application makes the E-commerce highly efficient, cost-effective and easy to use [19-20]. All stated applications are the first derivative in AI developments which requires continues modification and users trials.

II. LITERATURE REVIEW:

In order to understand the flow of this paper and concept behind the paper, we have divided this paper into four groups i.e. Education, healthcare, Environment, and E-commerce. Figure no 1 shows AI intersection with human life.



Fig no 1 AI intersection to the human life

A] Education

'Empower Education to Empower the Nation' if we want to make this tagline successful then equality in education is one of the important agenda in today's education. Education systems are divided into economic and geographical barrier hence it is very difficult to provide equality in education to all the population. But due to fast development in artificial intelligence in recent years, it is possible to provide equality in education. With the help of the literature review, we have identified some of the developing areas of education with the help of artificial intelligence. [1-4].

1] Personalized artificial tutoring system:

In this application we can assign personalized robot tutor who will guide, teach and access the performance of the student which will act as the most effective and efficient way of teaching-learning process where the concept is taught not only theoretically but also experimentally which will help student to identify real-life concepts more precisely. This system will provide digital platforms to rural and urban students to share their thoughts and ideas.

2] Content-based delivery systems:

In this application, cloud-based content learning option is been provided to the students. Due to scientific advancement in cloud computing technology, we can provide cloud-based content, e-books to the students. These digital platforms provide a chance to learn digitally and accelerate student performance.

3] Online Assessment:

Lot of time and energy is wasted on the preparation of question paper, question bank, assignments and assessment of answer sheets. This time and energy we can save with the help of machine learning. Advancement in machine learning algorithms can perform this task more smartly and accurately as compared to human being and satisfy the goal of quality education.

4] Tutor shop: This is another area where advancement in Natural language processing and Sentimental analysis can be used to judge the student's performance by observing his/her emotional and physical activity during learning. This tool can be beneficial for all slow learner students.

As we have mention above some of the applications in the area of the education system and many more are under development. By 2023 content delivery system, Natural language process and on cloud technology can reshape the entire education system of the world. From this, we can conclude that artificial intelligence can act as a game changer in the education field in the coming decade. Some of the prominent player in this area are: IBM Corporation, Microsoft Corporation, Google, Cognizant, Pearson, Bridge U, etc.

France, South Korea, Australia, US have released their AI policy about the development of education system, hence it is also the need of Indian government to release policy of AI in the education system so that researcher and education community can come together to provide cost-effective and equality education systems to the society.

B] Health care

Technology-enabled health care provides many promises to the society in the recent years. The social and economic growth of any nation depends upon healthcare. Best Healthcare of any nation always depend upon four attributes i.e. cost-effective, fast in diagnosis, responsive and accurate. Due to economic and geographical barrier it very difficult to satisfy the need of healthcare by traditional way. Because of the fast development in artificial intelligence, it is possible to provide cost-

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effective E-health to the welfare of the society. Following diagram shows the basic block diagram of the healthcare system with AI [5-15].

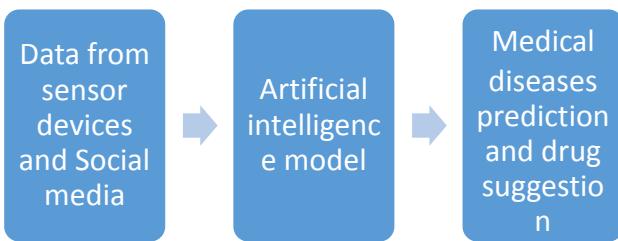


Fig no.2 Basic block diagram of future healthcare with AI

Some of the important application of artificial intelligence in health care are

1] Activity monitoring:

In this application with the help of different body sensors we can measure human body activity or energy expenditure .This data is given to the machine learning algorithms from which we can monitor different body parameter that will be helpful to predict different illness like diabetic, weight loss and also suitable to monitor activity of old age and child care application. Fit bit, Apple watch is the available product in the market which requires continuous monitoring and user trials as accuracy is a major concern. But within a short period of time, we will come across perfect activity monitoring device which will be helpful in monitoring physical activity.

2] Artificial pancreas:

Due to change in human lifestyle today's human life is under tremendous stress, hence facing a lot of chronic diseases. One of the most important non-communicable disease is diabetic which will decrease the working ability of the pancreas. With the help of Artificial intelligence, it is possible to provide a unique solution to healthcare. This application is also under clinical trial but in the future, we will come across perfect artificial pancreas which will surely save the life of human being.

3] Radiology:

In this application MRI, CT scan, X-rays, Mammography, PET scan data generate medical information about the illness which is identified only by the experienced radiologist. But due to scientific development in Image processing and deep learning it

possible to identify all the illness with the help of machine itself. Machine learning algorithms in this area provides the most unique features like image enhancement, image segmentation, increases the speed of diagnosis and reduces diagnosis time. This ability of artificial intelligence acts as a helping tool to the physician and radiologist to diagnose the complex images.

4] Health records systems:

Due to big data and cloud computing, it is quite possible to maintain a health record of world population. It is the need of researchers, physicians, and patients to maintain health records of previous illness, hospitalization, medicine intake for future analysis as well as generation of reference data set for the world community. These health records systems are also helpful for old age and child care purpose. Recently many health records systems are under development but having many implementation issues like security and international protocol for sharing data. But within a short period of time, we will come across more secure health records systems for our ready references.

There are many applications which are impossible to pin outs like drug delivery, drug manufacturing, personalized medicine, machine learning for better behavior modification.

Some of the recent trades of the AI in the market are Dexcom Next generation G6 sensor for measuring blood glucose, Medtronic's minimed 670G Artificial pancreas with Gardian 3 CGM technology, Sugar.IQ Mobile Application to analysis treatments in diabetic, Bio- foot Biomedical Uses Artificial intelligence for delivery of insulin to diabetic people, DIABNEXT Personalized metric Analysis to provide a decision to patient and physician, XBird Analyze insulin data points with artificial intelligence to create an effective solution for patients and physician, etc[21-28].

Even though these are the first derivative applications of AI in healthcare which requires more accurate machine learning and deep learning algorithms, a valid reference dataset for training the algorithms, enhanced sensor technology, security and legal and ethical issues for sharing of the dataset .

c) Environmental

AI in the environment can provide a new solution to handle environmental issues. Today's environment consists of lots of challenges like climate changes, loss of biodiversity, water quality and increase in the human population. System thinking approach is required which allows a large amount of data collection and analysis of

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this data to provide a unique solution to the society. A natural disorder like earthquakes, wildfires, and cyclone are hard to predict but with the help of machine learning, we can find common disaster causing variables. With the help of machine learning we can predict atmospheric changes in the river, water conservation and riverfront with 90% accuracy. Farms need to double their yields by 2050 for feeding earth growing population needs to change today's routine application of water, fertilizer and pesticides and ready to apply new technology of AI and IOT to increase the production. Following diagram shows the basic idea of implementation of AI in Environmental science [16-18].



Fig. no.3 shows Block diagram AI application in environment science

Some recent trades of AI in environmental science are,

1] Cube satellite:

This is a Nano satellite which uses machine learning algorithms and satellite images to measure the run time pinpoint variables of environmental. With the help of this satellite, we can predict the environmental changes and make potential policy to protect the flooding and property damage. With the help of this satellite, it is very easy to pinpoint the sources of pollution more accurately.

2] Preserving water/air Quality:

Data available from water sensor, environmental sensor, and machine learning algorithms can provide useful information to maintain quality of our water and air quality and help to design a proper policy to maintain our resources at safe limits. With the help of an environmental sensor and machine learning, we can measure greenhouse gas and develop a proper policy for elimination.

3] Wildlife preservation:

This is another area where immediate attention is required. Due to technical advancement in machine learning and big data available from the internet we can generate some useful information for preserving wildlife on the earth.

4] Crop yielding:

In order to satisfy the need of the growing population in the future, farmers has to change the routine application of water, fertilizers, and pesticides. With the help of advancement in IOT and AI technologies it is possible to provide a new solution to the routine farming in the coming years.

5] Forecasting the Renewable energy:

Today entire world is approaching towards renewable energy but it depends upon environmental changes. To predict how much energy is available at what place and time artificial intelligence can act as a game changer to forecast the solar and wind power.

Some of the recent projects in environmental science are, Microsoft AI for earth which has committed 50 million dollars over next five years to develop a novel technical application for AI .Also in China Green Horizon project is developed to control air pollution and their sources.

Some of the prominent players in these areas are Microsoft, Google, Tesla, and IBM.

D) E-commerce

Due to machine learning and natural language processing (NLP), AI provides the most promise to the area of E-commerce. From 2018 there is day by day development in the area of E-commerce due to safety in use and profitable. With the help of Big data and Artificial intelligence open up broad range of applications in E-commerce which will convert a vast amount of data into business value [19-20].

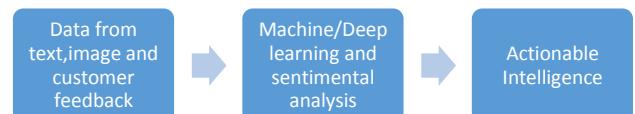


Fig. no.4 shows the basic implementation block diagram for AI in E-commerce.

Some of the most popular applications of AI in E-commerce are listed below.

1] Retail business:

Number of online purchase increases which allows most of the companies to collect the detailed data which is based upon customer experience i.e. which product, in what order, in what range, which brand, on which day, how they rate the product with this information and

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support of machine learning Retailer can develop more efficient and customer engaging policies for future sell which will satisfy customer needs.

2] Product Recommendations:

This is another area of E-commerce where concept machine learning is gaining popularity due to modified algorithms known as collaboratively filtering and content-based filtering. In collaboratively filtering, recommendation depends upon how similar customer can select the product in the past, if X brought A and Y brought B then the machine can recommend product B and A to X and Y customer respectively. In content-based filtering, the recommendation is given on the base of the content of customer profile (gender, age, brand preferences) to the content of the product (Category price, color).

3] Search engines:

Due to technical advancement in big data it is possible to store a larger database, hence E-bay has listed more than 800 million products in their catalogue. This high product range help machine learning to make more efficient search algorithms to engage the customers. Apart from text-based search, an image-based search is becoming more popular due to advancement in image recognition. In future customer emotions and facial expression behind the product can also act as the best alternative to the search engine. This concept is under research, let see how companies put into practice.

4] Fraud detection:

When there is more data in business it is harder to check its consistency. One way to handle this problem is automatic anomaly detection in which advanced machine learning algorithm can identify pattern in the data and highlight what is normal and what is abnormal and send alert as soon as data crosses the normal range. A popular application of this approach is fraud detection.

5] Customer support:

When we are facing problem with particular service of the product and when trying to get it repaired we often face the worst experience. Machine learning can help to automatize this process through a robot that can answer the phone calls due to advancement in speech recognition and natural language processing through deep learning. Most popular application in this area is Chat bots which will provide a more natural and flexible way of communication. Chatbots are also communication channel for consoling and marketing. Apart from phone calls machine learning also supports automatically answering the emails, categorization of the emails and customer support.

6] Dynamic pricing:

Airline reservation firstly uses this concept to decide online booking of air tickets by predicting demands with the help of machine learning. This dynamic pricing uses information about optimal price, price of competitors and time of delay, seasons, and available stock. This concept has become more popular and used in transportation by Uber.

There is much more application of AI in E-commerce which is in underdevelopment known as customer segmentation, product categorization, Sentimental analysis, and inventory forecasts. In short new revolutions in big data, machine learning and sentimental analysis can make a significant change in the E-commerce industry in coming decades.

III. DISCUSSION:

In this section, we will focus on some key points of this study for discussion and take away points given in table no.1.

Human life Area	Resents AI models	Area of Future scope
Education	Personalized Artificial tutoring system, Content-based delivery systems, Online Assessment, Tutor shop	Preparing AI to understand the Education. Development of quality dataset for education. Preparing teacher to understand the AI power in education. Strong government Policy in education.
Healthcare	Activity monitoring, Health records systems, Radiology, Artificial pancreas	Data collection and storage. Enhancement of Sensor technology. Dense Breast cancer detection. Collection of heterogeneous data Cyber security. Generation of a

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		reference data set. Legal and ethical issues
Environment	Cube satellite, Preserving water/air Quality, Wildlife preservation, Crop yielding, Forecasting Renewable energy.	Generate Data details of variables. Conversion of unanticipated data. Reduction in data redundancy Diversity of data.
E-commerce	Retail business, Product Recommendations, Search engines Anomaly detection, Customer support, Dynamic pricing	Effective data storage technique. Cyber security. Integration with IOT technique. Modified versions of search engines.

Table no.1 shows summary of review paper study.

IV. CONCLUSION

From the last two years Artificial intelligence is gaining popularity in human life. These technologies had made a great impact on many applications like E-commerce, healthcare, education, environmental science, etc. Recent years AI has develop first derivative application in all the fields of human life. Despite this advancement of AI in human life there are still untangle challenges glimpsing on the adoption of complete AI. Further research and developments are required in terms of highly accurate algorithms, data transparency, standard reference data set, government policy regarding the adoption of AI, security issues and legal and ethical issues. As a result of this there is an increasing demand for a researcher to develop more precise applications for future need of human being. In future use of AI for the development of technology can act as a game changer for the world economy.

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