

Date: 21/ Feb/ 2023

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(Expository Essay)

The Rise of Artificial Intelligence: Opportunities and Challenges.

Outline:

1. Introduction

Thesis Statement: Artificial Intelligence has revolutionized the world and created plenty of opportunities. However, AI also suffers from different challenges. Nevertheless, these challenges can be overcome through various measures.

2. How Artificial Intelligence Emerged.

3. AI Creates many Opportunities for the World's people

3.1 Bringing Revolution in the Medical field.

3.2 Making Education Sector Efficient.

3.3 Mushrooming Productivity of Industrial and Agriculture sectors.

3.4 Creating ease for Govern-

ment to Maintain Law and order.

3.5 Helping for Addressing the Environmental Issues.

3.6 Becoming Convenience for Collecting Effective Tax

3.7 Being utilized in Preventing Cyber Attacks.

4. Artificial Intelligence faces various challenges

4.1 Being used to Generate Harmful Misinformation

4.2 Being Replacing the Human Jobs and creating Technological skills

4.3 Reducing the critical Thinking of students.

4.4 Possibility of Being used by Non-state Actors

5. Way forwards to Eliminate the challenges of AI

5.1 Need for Regulations to Ensure safety and protection.

5.2 Need to Replace Traditional skills to Modern skills

5.3 Not Being Dependent upon AI and Enhanced Thinking Capability

5.4 Developing the Technical solution and Enforcing International Norms and standards around the use of AI.

6. Conclusion:

"Artificial Intelligence will have a more profound impact on humanity than fire, electricity and the internet"; Sundar Pichai, the CEO of Google. In this statement, Sundar Pichai maintained that AI would have more significance than other necessities of human life, and it would become a part of human's wants. The prominent reason is that it has created many opportunities for human. It has brought revolution in the field of medical. Now the human's diseases concerned with the threat to human life can be easily detected by AI. Besides, It

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has made education sector efficient.

The qualities of human learning ~~are~~ have improved through AI.

It also mushroomed the productivity of industrial and agricultural sectors. Through modern technologies - in which AI has ^{been} installed

the efficiency of production has optimized. Moreover, it

became convenient for government to maintain law and order.

AI is able to analyze previous large amount of data of criminals and predict when and when crime

is possible to be done. It

also helps for addressing environmental problems. It can predict

natural disasters to mitigate them.

Furthermore, AI became easier to collect effective tax as well.

AI can analyze vast amount of data, and find inconsistencies

in financial accounts and

improve the system of taxation.

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It is also utilized in averting cyber attacks and has improved the cyber security system. However, Artificial Intelligence confronts various challenges, along with having multiple opportunities. AI can be used to generate harmful ^{mis}information and defame or deceive the innocent people. AI is also replacing human jobs and creating technological shifts. It is affecting human's lifestyle and is pushing them towards poverty. AI has also reduced the critical thinking of students. Their all given assignments and researches are dependent upon AI. Additionally, there is ^{also} possibility of being used AI by non-state actors and can harm states' sentiments. ^{and assets} Despite Although AI faces the challenges, these can be overcome by a few way forwards. Government needs ~~to~~ regulators

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to ensure safety and protection.

Regulations should be imposed on companies or individual to require transparency and accountability. The

people who faces unemployment due to AI should replace their traditional skills to modern skills.

Besides, Teachers should not be dependent their students upon AI

chat bot, and should evaluate the students' home work. Through this solution,

their thinking level will be enhanced. Expert should also develop

the technical solution to prevent non-state actors ^{from} using AI wrongfully.

Therefore Artificial intelligence has revolutionized the world and created plenty of opportunities.

However, it also suffers from different challenges, but these challenges can be overcome through various measures.

Artificial Intelligence is a branch of computer

that focuses on creating systems or machines capable of performing tasks that would typically require human intelligence. These tasks include problem-solving, learning, reasoning, perception, and understanding natural languages. Historically, in 1950, ~~research~~ researchers started developing computer programs that could solve the logical problems. AI was coined in 1956 at the Dartmouth Conference in which researchers discussed the possibility of creating machines that could simulate human intelligence.

In 1970's, developers expended more work on AI ^{program}. They properly released the computer games which were run by computer program. However, it had some technical problems. Then, in 1980's, in specific domain, expert strengthened program which

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do ~~minimize~~ the decision-making. Additionally, they brought advancements in machine learning, such as the backpropagation algorithm. In 2000, computer programs were more stronger than before. AI now experienced a resurgence with the advent of big data and powerful computing resources. In last decade, AI emerged more developed than before. Many AI-powered applications have been launched which help people in every field of life. It created more easiness. Today, AI is being used or utilized in a variety of applications which are self-driving, such as Chat GPT-4. AI is still ~~being~~ developing and learning from humans. In future, it will modernize the world more.

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Artificial Intelligence created various opportunities for the world's people, and one of these is medical field in which AI brought revolution. The key reason is continuous innovation of AI in detecting different diseases. In the area of diagnosis, it helps doctors to identify the disease of patients. It further benefits to both doctors and patient to start treatment of the ^{effectively} recognized disease. Secondly, there are different A.I.'s symptoms checker websites which are used for personalized treatment, such as Ada.com. These applications and websites can give seventy to seventy five percent accuracy in detecting diseases. Lastly, AI is also used for ~~research~~ research in the field of medical to eliminate more lethal diseases. Therefore, developing AI brought convenience in field of medical.

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Along with bringing revolution in medical sector, Artificial intelligence has made education sector efficient. AI is not only lucrative for students but it is also beneficial for teachers.

In higher level of education, students can read or note vast amount of material through AI after attending lecture in universities. Similarly, AI is also more convenient for teachers or professors to prepare their topic for students extensively.

For analyzing vast amount of data, AI helps students in research. In order to accomplish the tasks of administration, assessments and grading, AI is helpful for teachers. In the simple words, AI has increased the opportunities for learners.

Therefore, education field has been become effective and efficient.

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ment through Artificial Intelligence.

Besides making education system effective, Artificial Intelligence mushroomed productivity of industrial and agricultural sectors. In AI in industrial sector improved the decision making how to increase the productivity of it. AI shifted industrial sectors from labour intensive to capital intensive. Industries

globally try to install AI in industrial technology to enhance their more productivity. Therefore,

both quantity and quality of product has increased. Besides it,

the cost of production has also reduced owing to AI. According

to Imagination Insider, market growth in 2022 was ab-

out \$2.3 Billion and it is expected

to reach a massive \$16.3 Billion

in 2027 through AI in

manufacturing market. Besides

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leveraging industrial sector, AI also play prestigious role in agricultural sector. Via it, the optimal production became possible.

AI based robots have been installed in small farming in developed nation in order to produce efficient crops. AI ~~also~~ algorithm can also identify the pests which spoil the crops.

Consequently, it became convenient to reduce the diseases of

crops and pests. Every year, pests were destroying up to 40% percents crops of the world, but

it is gradually being overcome via AI. Therefore, productivity

of agricultural and industrial sectors has elevated through AI.

Artificial Intelligence is not only mushrooms productivity of industrial and agriculture sector but it also creates ease

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for government to maintain Law and order of a country. Growing AI has modernized the system of the country's administration. ^{in the world.} AI algorithms can analyze the past data of crime in the city or country and predict ~~that~~ when and where crime is possible to be done. For instance, China, United Arab Emirates, United States of America, and Singapore uses AI-powered surveillance systems in order to resist crime. Moreover, these government also install AI in the system of traffic which is connected with ~~security~~ CCTV (closed-circuit television) cameras. These cameras are used to detect the traffic violations as well as improve security on roads. Additionally, AI ^{can} also accesses the risk which is posed by individuals. If this individual is under arrest, he or she is conveniently

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investigate and judged. Therefore AI is helpful for government to maintain law and order.

Furthermore, Artificial Intelligence Coordinates to address environmental issues. The rampant global warming affected many countries which are vulnerable to it, such as Japan, China, Pakistan and more. Therefore, developed nations - like United State of America, China and Japan - forecast natural disasters through AI-driven systems.

It predicts the weather conditions and according to these predictions, these countries mitigate the threats of natural calamities. For instance, AI-based systems can recognize hurricane formation and factors that could lead to wildfire, such as changing heat signs during wildfire can be detected by

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AI. It has saved and will save many people's lives.

The US utilises AI to enhance weather predictions, early warnings, flood monitoring, disaster-response coordination and long-term climate modelling.

It ~~it~~ improves the disaster systems. To sum up,

AI plays a crucial role in addressing environmental problems.

Apart from helping for addressing environmental problems,

AI made convenience for collecting effective tax.

AI algorithms ^{can} goes through massive amounts of data to recognize

inconsistencies between reported incomes and very financial

transactions. It ^{can} also detect the fraudulent activities in the process

of collecting taxes. Moreover, AI-powered system can automate routine

tasks like data entry and

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Form filling. AI can predict the upcoming tax revenue through previous massive data record. In custom services, AI-driven chatbots and virtual assistants can deal with taxpayers' inquiries and provide guidance on tax regulation too. Therefore, AI created ease for ~~collecting~~ efficient collection of tax.

With making ease for collecting effective tax, AI is also utilized for averting cyber attacks. It can analyze network traffic, system logs, and behavior to identify patterns indicative of cyber threats such as suspicious activities. It also analyzes the vast amount of data and predict new emerging issues in cyber security. It is effective to strengthen cyber security system. Moreover, it monitors

user behaviour to recognize suspicious accounts in it.

AI-driven security systems can respond to cyber threats in real-time by automatically blocking malicious network traffic, quarantining infected devices, or triggering incident response workflows. Therefore, AI helps to prevent cyber attacks.

However, besides having or creating plenty of opportunities, #

AI also faces various challenges.

one of challenges is used to generate harmful misinformation. in the society, some people generate false content on social media and spread out.

In some cases, women or females are harassed through being generated their fake pictures ^{or videos} in order to defame them. Besides, in politics, ~~for~~ in order to decline the vote bank, politicians are

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disdained by extending wrong propaganda of misinformation against them. Moreover, AI-powered text-to-speech synthesis can generate lifelike speech from the written text. Malicious actors can create fake voices or audio recording and deceive people in business, politics and society. Therefore, generating harmful misinformation is a threat to AI.

AI is not only used to generate harmful misinformation but it is also replacing human jobs and creating technological shift in industrial sector, every machine or technologies are going towards automation and labours are losing their jobs.

As per the World Economic Forum, automation could displace around 85 million jobs upto 2025. Furthermore, in agricultural sector, labours almost lost their jobs because the

new technology such as drones which are used for chemical spray on ~~crafts~~ crops, tractors, harvestors and cultivators - replaced the labours. In service sectors, there were talented individuals who were graphic designers, content writers, and data analyst. However, all have ^{almost} lost their services or jobs. ^{and going towards poverty} The reasons behind are ^{challenges of} AI which is used in these all sectors. Thus, human jobs have been replaced by AI.

Besides replacing jobs AI declines critical thinking of students while learning. Before launching Chat GPT - AI-based software which is used for collecting information, the teachers were used to give assignments to students in order to be done by themselves. While solving assignment, they must critically analyze the given topic. Through this tactics, their the ability of their thinking level was increased.

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In higher studies, students approached different sources for their research and they ultimately completed their research. However, as AI chat bot came into market, these all learning opportunities have been lost and almost all students take a help from chat bot. Their learning process has declined, when students are now given the topic for assignment or they start their research, so they must approach chat bots to do their work ^{without thinking} from it within a few minutes. Therefore, the thinking of students have reduced due to AI.

Along with reducing critical thinking of students, AI can be used by non-state actors. AI-driven autonomous weapons systems ~~was~~ was developed. This system can be used for malicious purposes. It can

can pose serious threat for state. ~~It~~ Recently, in Dera Ismail Khan, KPK, Pakistan, ten police cops were martyred and six injured in attack. Non-state actors used AI-powered weapons while attacking on the police stations. Furthermore, utilizing AI can be conducted disinformation campaigns to discredit state internationally. There are a series of fake accounts on social media, such as Facebook, Instagram and TikTok, where propagandist ~~made~~ spread disinformation against other states. According to Meta, it has removed 7,704 Facebook accounts, 954 Facebook pages and 15 Facebook groups and 15 Instagram accounts which were associated with Chinese influence campaign. These accounts were being used against other developed countries, such as USA. These are social media manip

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pulation which is possible through AI algorithm. Therefore, there is possibility of AI being used by non-state actors.

However, these challenges of AI can be overcome through various remedies. One of remedies is to impose regulations to ensure safety and protection, and overcome spreading harmful misinformation. Regulations should be put or imposed on companies or individual to require transparency and accountability. Secondly, disclosure of AI-powered system should be compulsory. Through this record, check and balance will be convenient. ^{for regulator} Thirdly, group of people, individual or companies should take responsibility either nationally or internationally if they are used to utilize AI. Finally, Regulators

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could impose sanctions or penalties for companies that fail to comply with regulations. Therefore, implementing regulation can overcome the spreading misinformation, and improve the AI market.

Indeed, AI is replacing human jobs and industrialization is going towards automation. However, eroding jobs can be prevented ~~and~~ through replacing traditional skills to modern skills. Before invention of Artificial intelligence labor was working manually and every machine either in agricultural sector or industrial sector was ~~run~~ by labour. Labour had skill to run these and had capacity to increase productivity. However, these traditional skill should be turned into modern skill. It means that labour

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should learn how to use AI either in agriculture sector or in industrial sector or service sector. According to World Economic Forum, it was estimated that by 2025, automation could displace about 85 million jobs, but ^{will} create around 97 million new jobs. Consequently, these jobs will be acquired by those people who have knowledge of or skills of A.I. Thus, by moving towards modern skills, the problem of losing jobs can be overcome.

Students reduce their critical thinking ~~is~~ due to using AI when they are given the assignments. However, this challenge - which is declining students' thinking level - can be prevented through not being dependent upon AI. The assignments or home works which are

given to students should be evaluated to improve them. Secondly, students should be engaged in activities which encourage them to think critically. These methods can prevent them from using AI wrongly. For instance, to give them the topic is best way on which they can argue or do ~~debates~~ debates as well as they can write essays on it. Next, students can practice questioning and challenging their own assumptions and biases. Hence, by practicing these skills can enhance students' critical thinking level.

Using AI by non-state actors can also be dealt with developing the technical solution and enforcing international norms and standards around the use of AI. In the countries, government can

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introduce regulations that require companies, and individuals who they are selling AI system to, and for what purposes. This can be ease for government to maintain check and balance the use of AI by non-state actors. Similarly, in international level, international organizations, such as United Nations, should promulgate promulgate law against the AI system which violates international peace. Furthermore, ^{countries'} governments can also contribute internationally to develop international standards for the use of AI. To sum up, non-state actors can be prevented from using AI by developing ~~technical~~ technical solution and improving AI-based system.

In short, Artificial intelligence has transformed the

World. It appeared with plenty of opportunities, one of opportunities is that it revolutionized the medical sector or field. It improved the quality of education sector and made it more effective. It also helps to government of countries in the world to maintain law and order. Furthermore, it coordinate made easier for addressing the environmental challenges. It became convenience for collecting optimal tax too. Besides, it is utilized to avert threats of attack on cyber as well. Apart from having opportunities, AI also suffers from various challenges. One of challenges is that AI could be used to generate dangerous disinformation. It is also replacing human jobs and is creating technological skills. AI has snatched the right of

critical thinking from the students as well. In addition that AI can be used by non-state actors and damage the state's assets and sentiments. However there are a few solutions to eliminate the challenges of AI. one of the solutions is that regulations should be imposed to ensure safety and protection. Secondly, unemployed people due to AI impacts should turn from traditional skills to modern skills. Next, students' assignments or researches should be evaluated after giving. Last but not least, technical solutions are needed to develop to prevent non-state actors in order to save the assets and sentiments of the states. Despite ~~var~~ having various challenges, AI will be developed more and will ease the life lives of people in the world.