

Artificial Intelligence or Augmented Intelligence?

Dr. Zubair Ahmad

Assistant Professor, BBD University

Abstract: *In traditional times for computing purposes many mechanical devices are made like ABACUS, Napier bones, Pascaline, Analytical engine, Census Tabulator, Turing machine. After this generation of computers started. Today the fifth generation runs and in this generation the computing devices are used is artificial intelligence and Robotic devices. The Google assistant in our mobiles and Alexa recognises our voice and perform work on our instructions. Technology advances today and we can complete our work by the help of artificial intelligence devices. Our work become effective, efficient and in a tidy manner.*

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1. Introduction

Artificial Intelligence is being increasingly deployed in all walks of life, to help ease out working. Likewise, Augmented Intelligence is the use of machines to support humans and not replace them. The digital era is going to be an amalgamation of both



Professor Stephen Hawking famously said, “The development of full artificial intelligence could spell the end of humans; it would take off on its own, and re - design itself at an ever - increasing rate. Humans, who are limited by slow biological evolution, could not compete, and would be superseded.”

But the good professor accepted that AI could be beneficial to humankind and said, “The establishment of shared theoretical frameworks, combined with the availability of data and processing power, has yielded remarkable successes in various component tasks such as speech recognition, image classification, autonomous vehicles, machine translation, legged locomotion, and question - answering systems. As capabilities in these areas and others cross the threshold from laboratory research to economically valuable technologies, a virtuous cycle takes hold whereby even small improvements in performance are worth large sums of money, prompting greater investments in research. There is now a broad consensus that AI research is progressing steadily, and that its impact on society is likely to increase. . . . Because of the great potential of AI, it is important to research how to reap its benefits while avoiding potential pitfalls.”

What is Artificial Intelligence?

There are not too many people who have not heard of AI in today’s day and age. Most of us would have been touched by it in some form or the other. The simplest example being the smartphone we use that has voice assistants, fingerprint and facial recognition. Though AI has been in existence for years, its real potential is being harvested now. Scientists have classified AI into four categories:

- Reactive – these are machines that provide an outcome based on the input provided to them. While there is predictability in their output, there is no learning.
- Limited Memory – these have a built - in learning engine and can use past data to make accurate predictions.
- Theory of Mind – this is still work - in - progress and once ready, will have human - like decision - making prowess with behaviour based on emotions.
- Self - Aware – this is when machines will be aware of their own emotions with desires and needs. Nothing like this has been developed so far but it is in the realm of possibility, sometime in the future.
- There is another way of classifying AI based on usage:
- Narrow AI can undertake one type of activity or task repeatedly and accurately, examples being spam filters or TV show recommendations.
- General AI has human like capabilities. While this is a theoretical possibility and research is on, we are far from achieving it as on date. The closest example of this kind of AI is the robot Sophia, developed by Hanson Robotics.
- Super AI will have the capabilities to outdo humans. It is debatable whether it is even possible to achieve, but if it does happen, then it will put us humans at odds with machines.

In its 2022 Hype Cycle for emerging technologies, Gartner listed three distinct themes and one of them is accelerated AI automation. It calls out the need for expanding AI adoption to evolve products, services, and solutions. It emphasises accelerated creation and deployment of AI models with outcomes that include more accurate predictions and decision - making.

Application of Artificial Intelligence

Currently, the most evolved version of AI is the narrow AI. Systems that are designed to perform repetitive tasks independently and accurately. Some examples are:

- Email spam filters and segregations like the ones done by Outlook and Gmail
- Voice assistants like Siri, Alexa, Google Assistant
- TV show recommendations on Netflix, YouTube
- Facial and fingerprint recognition
- Chatbots
- Autonomous vehicles
- Machine maintenance and breakdown alerts in manufacturing
- Fraud detection in financial services industry
- Tele medicine and healthcare
- Limited self - learning capability – most AI implementations will need repeated re - training offline
- Understanding cause and effect for any event.
- Ethical reasoning – Microsoft had to abruptly withdraw its chatbot Tay which inadvertently tweeted offensive messages. It just did not understand the concept of right and wrong.

Where is artificial intelligence headed?

Like it or not, AI is all pervasive in our lives today, whether personal or at enterprise level. It is influencing our decisions and making things easier. However, this is just the beginning and with the kind of money that is being pumped into AI research and development, this field will see newer products and solutions. These may well disrupt the status quo for better or for worse.

The key fear is that it will negatively impact the workforce and take away routine, repetitive jobs very soon. While in the earlier times, the idea was to reduce the workforce incrementally, now the talk is about how small can the workforce be? Then there are massive concerns of privacy – in 2018, **Article 19**, a human rights organisation expressed serious reservations about the direction AI is taking: *“If implemented responsibly, AI can benefit society. However, as is the case with most emerging technology, there is a real risk that commercial and state use has a detrimental impact on human rights. In particular, applications of these technologies frequently rely on the generation, collection, processing, and sharing of large amounts of data, both about individual and collective behaviour.”* They also highlighted the fact that automated decision making can lead to biased outcomes.

What is augmented intelligence?

Gartner defines augmented intelligence as a design pattern for a human - centered partnership model of people and artificial intelligence (AI) working together to enhance cognitive performance, including learning, decision making, and new experiences. As the name suggests, augmented intelligence is the use of machines to support humans and not replace them. The idea is to use human cognitive faculties and the machine's speed and accuracy to improve outcomes.

Objectives

The following are the main objectives of the study:

- 1) To know about the relevance of artificial intelligence in present time.
- 2) To find out the ways of how we can benefit with artificial intelligence
- 3) To recommend the ways through which the benefits of artificial intelligence will be enhanced.

Need and Importance of Artificial Intelligence

In computer science and computers, the term artificial intelligence has played a very prominent role. The term has become more popular due to recent advances in Artificial Intelligence and Machine Learning.

From the above non - exhaustive list, it is obvious that AI today is deployed in all walks of life and most sectors of the industry in helping workers being more productive. It is in our day - to - day lives in the form of smartphones, home automation systems, robot vacuum cleaners, maps for driving directions, etc.

Have you ever wondered what the underlying technologies used by these applications are?

Speech Recognition

Speech Recognition is used by the voice assistants that are prevalent in our smart phones and also standalone devices like Alexa. Speech Recognition works in conjunction with **Natural Language Processing (NLP)** in breaking down the structure (morphology) of the sentences and then using Syntactic parsing, Semantic analysis, Sentiment analysis and other linguistic science techniques to make the systems intelligent enough to interact with humans.

Machine Learning and Deep Learning

Machine Learning and Deep Learning algorithms are used to train models for data classification. Which of the two to use depends on the kind of problem that is to be solved. Machine Learning and Deep Learning algorithms are also used in data analysis, processing and cleansing, more so where the data is unstructured and consists of pictures, video and voice. This has found critical application in Cyber security in today's digital age. Based on its ability to decipher patterns from humungous data volumes, these models assist in identifying and preventing threats.

Computer Vision

Computer Vision makes use of algorithms of Machine Learning in simple applications and Deep Learning for complex applications in detecting and then identifying objects. This is put to use in the facial recognition feature of smartphones and computers on the one hand and autonomous vehicles on the other hand. Some other examples of Computer Vision are bar coding, self - checkout kiosks and medical imaging.

That said, today's AI has limitations and is an evolving science. It doesn't have the following characteristics that we humans have:

- Common Sense – without the right input, it will not give the correct outcome

Machine learning is the area of artificial intelligence where machines are responsible for completing daily tasks and are believed to be smarter than humans.

They are known to learn, adapt and perform much faster than humans and are programmed to do so. Robotics and integration with IoT devices have taken machines to think and work to a new level where they out - perform humans in their cognitive abilities and smarts.

Below we are going to read about the huge importance of Artificial Intelligence:

- Artificial Intelligence's importance and subsequent components have been known for a long time. They are being seen as tools and techniques to make this world better. And it's not like you have to go through to be able to use these fancy tech gadgets. You can look around, and I'm sure most of your work is smoothed out by artificial intelligence.
- Its importance lies in making our life easier. These technologies are a great asset to humans and are programmed to minimize human effort as much as possible. They can operate in an automated fashion. Therefore, manual intervention is the last thing that can be sought or seen during the operation of parts involving this technology.
- These machines speed up your tasks and processes with guaranteed accuracy and precision, making them a useful and valuable tool. Apart from making the world an error - free place with their simple and everyday techniques, these technologies and applications are not only related to our ordinary and everyday life. It is affecting and holds importance for other domains as well.

Important uses of Artificial Intelligence are given below:

1) In Medical Science

- Artificial Intelligence has made an unprecedented impact in the medical industry and hence changed the face of the medical industry. Various machine learning algorithms and models have efficiently predicted various important use cases, such as determining whether a particular patient has malignant or benign cancer or tumour based on symptoms, health records, and history. It is also being used in future predictions where patients are well informed about their deteriorating health and what they should do to return to a normal and healthy life.
- Artificial intelligence has created a virtual care private assistant specifically built for people's needs. It is widely used to monitor, research different types of cases, and analyse past cases and their outcomes. It also seeks to improve their model's and assistants' efficiency by predicting what could be improved and making themselves smarter.
- The use of healthcare bots is another efficient move taken by the medical industry to work their way up in medicine, which is known to provide 24/7 assistance and take up the less important work of managing appointments. It has not have been possible without the intervention of these smart artificial intelligence - based machines.

2) In the Field of Air Transport

- One of the major systematic transports in the world is air transport, and there has become an urgent need to optimize their mode of operation. Here came the involvement of Artificial Intelligence, where the machine is involved in planning the routes along with the flight landing and take - off charts.
- Artificial intelligence has been used in many aircraft, navigation maps, taxing routes, and a quick examination of the entire cockpit panel to ensure the correct operation of each component. Hence, it gives very promising results and is being adopted very frequently. The aim of artificial intelligence in air transport is to give easier and more comfortable travel to human beings.

3) In the field of banking and financial institutions

- Artificial Intelligence plays a vital role in managing financial transactions and handling many other activities in the bank. The day - to - day operations of banks, such as transactions and financial operations, stock market money and their management, etc., are being handled more easily and efficiently by these machine learning models.
- Use cases such as anti - money laundering where suspicious financial transactions are being monitored and reported to regulators are a classic example of artificial intelligence in the banking and financial industry. Other use cases include credit systems analysis which is popular among credit card companies. Suspicious credit card transactions are tracked geographically and acted upon and resolved based on various parameters.

4) In the field of gaming and entertainment

- From virtual reality games to today's modern games, this is one industry where artificial intelligence has made the biggest leap forward. Bots are always there for you to play with, so you don't need another person to play.
- The level of personalized detail and graphics is also possible due to the advent of Artificial Intelligence and is taking this industry to a different level.

5) AI Achieves Unprecedented Accuracy

- AI achieves remarkable accuracy through deep neural networks, which was previously impossible.
- For example, Google Search and your interactions with Alexa are all deep learning - based, becoming more accurate the more we use them. AI techniques are also used in medical fields to search for cancer cells on MRI with high precision as highly trained radiologists.

6) AI Is Reliable & Quick

AI performs computer - generated tasks consistently, extensively, and reliably. However, human skills are required to set up the system and ask the appropriate questions.

7) AI Adds Intelligence to Products

- AI will not be sold as an individual product. Instead, your products will be enhanced with AI integration, like the Apple products discussed with the Siri feature.

- Chatbots, automation, and smart devices, combined with massive amounts of data, can improve many technologies at home and in the workplace.

8) AI Evaluates Deep Data

- With big data and computing power, it has become possible to develop fraud detection systems that were nearly impossible just a few years ago.
- It would help if you had a lot of data to train deep learning models because they learn directly from the data. The more data, the more accurate they are.

9) AI Fully Utilized Data

It would help if you implemented AI to get answers from the data. The role of data is more important than ever; Its gives you an edge over your competitors if you have the best data system in this competitive industry because the best data will win!

How can artificial intelligence help us in future

“ [AI] is going to change the world more than anything in the history of mankind. More than electricity. ”— AI oracle and venture capitalist Dr Kai - Fu Lee, 2018

From driverless cars to voice automation in homes, artificial intelligence has progressed rapidly and is no longer just a concept from sci - fi movies and books. Artificial Intelligence Future is arriving faster than the predictions shown in the long hailed film “Minority Report” set in 2054. According to a research by scientists at the University of Oxford, Artificial Intelligence will be better than humans at translating languages by 2024, writing school essays by 2026, selling goods by 2031, write a bestselling book by 2049, and conducting surgeries by 2053. In the next few years, AI will become an integral part of our lives reaching the level of super - intelligent machines to exceed human intellectual competencies.

- Imagine opening the door of your hotel room without a key, but rather through facial recognition tools. Your face will become your identity making everyday transactions easier and efficient
- Get ready to have your products delivered by smaller drones straight to your doorstep within minutes of placing an order.
- AI - based virtual assistants will place human - like calls to book an appointment at, say, your neighbourhood salon understanding the nuance and the context of the conversation.
- Prepare yourself to be operated by a Robot Surgeon. In the next few years, a physical surgeon will only be a spectator as a robot performs the surgery and helps patients better understand their care options.

These are just a few examples of how artificial intelligence will change the future. Artificial Intelligence Future advancements seem like a long way off, but they will be here sooner than we can even think off. Top technology companies are in a race to implement artificial intelligence in our day to day lives - which will lead us to a really fantastic and exciting artificial intelligence future.

How Will AI Change the Future?

1) Artificial Intelligence Future in Healthcare

Nearly 86% of the mistakes can be prevented in the healthcare industry and AI will play a vital role in this. The future of AI in healthcare is a step towards democratizing healthcare for the benefit of patients and healthcare professionals alike, while at the same time making it less costly and more accurate through AI - powered predictive care. Predictive analytics coupled with artificial intelligence can help understand various factors (place of birth, eating habits, local air pollution levels, etc) that influence a person’s health. In future, we can expect AI - powered healthcare systems to anticipate when a person is most likely to develop a chronic disease and suggest preventative medication to cure it before it worsens.

With several types of research underway on developing AI - powered applications to help doctors diagnose and treat patients, AI will definitely be a game - changer in imparting better medical care to patients. You can expect a totally different future for healthcare as robots interact with patients, check on their health condition, and evaluate the further need for an appointment with a doctor. We will still need doctors, nurses, scientists, and the list goes on. However, AI will simplify our lives by making the clinical and healthcare data we generate more actionable.

Artificial Intelligence Future in Retail

- The global market for Artificial Intelligence in Retail is expected to grow over \$5 million by 2022.
- According to a study by Capgemini on the impact of AI in Retail, if retailers deploy AI across their business operations, it can save them over \$340 billion by 2022.
- Accenture reports that AI investments in retail will boost revenues by 38% by the end of 2002.

These statistics are a clear proof of evidence that AI promises a great future for retailers with diverse usage possibilities for better business decision making. In future, you can expect delivery of up to 5 - pound packages in less than 30 minutes, all thanks to AI - powered drones. Amazon is already working on it to determine proper safety and reliability of operations for delivering packages but there is no tentative date yet on the commercial use of these drones. However, in the next decade, you can anticipate the autonomous delivery of goods and food immediately with drones.

Not just autonomous delivery but the future of AI in Retail is more autonomous and individualised with realistic scenarios that include virtual racks customized according to data - defined persona, connected dressing rooms with screens, and a lot more personalization based on previous history and trends making consumer choices less stressful and chaotic.

2) Artificial Intelligence Future in Banking

According to IHS Markit’s AI in Banking report, the global business value of AI in Banking anticipated reaching \$300 billion by the end of 2030. Artificial Intelligence is all set to take centre stage in the next decade in verticals like business intelligence and security with reduced cost, increased

productivity and enhanced customer experiences. Robo Advisors in wealth management will become a common sight and game-changers in the banking space - saving significant amounts of time for wealth managers and customers. The banks of the future will not just personalise their services and products but will use AI to personalise customer experiences. A great example of such personalisation would be removing the need to produce an ID card when you walk into the bank branch and still continue to be greeted with your name and complete knowledge of your entire bank account history.

3) AI to Open Up Millions of New Job Opportunities

“Artificial Intelligence will take our jobs!” is the most common fear surrounding artificial intelligence in the future. With artificial intelligence automating all kinds of work, we can think of a more comfortable future for ourselves that will create new jobs and not displace them. According to a report on the Future of Jobs by World Economic Forum, AI will create 58 million new artificial intelligence jobs by 2022. There is an excellent chance that by 2030 AI will outperform humans in most of the mental tasks but that does not mean it will take away jobs.

In fact, the Indian AI industry has doubled in size in 2019 compared to the previous year. In just one year, 3 times more companies are working on AI-based projects and this momentum is likely to continue. India almost doubled its artificial intelligence engineers in 2019 (from 40K in 2018 to 72K in 2019) but still faces a talent shortage. The growth in the Indian AI industry is powered by professionals transitioning into artificial intelligence engineer job roles by upskilling themselves through various mentored artificial intelligence courses.

Artificial Intelligence Future is coming – coming soon! Now is the time to prepare for the age of AI by investing in education and training. The choice remains with you – will you upgrade your skills to stay ahead of the curve or will you remain still and stagnant in the industry. Aren't you eager to be a part of this fourth industrial revolution? Reach out to our career coaches to find out how Springboard's Artificial Intelligence Course can help you upskill and land a top AI gig at one of the top tech companies.

Benefits of Artificial Intelligence in today's World

Reduction in Human Error

One of the biggest achievements of Artificial Intelligence is that it can reduce human error. Unlike humans, a computer machine can't make mistakes if programmed correctly, while humans make mistakes from time to time. Therefore, Artificial Intelligence uses some set of algorithms by gathering previously stored data, reducing the chances of error and increasing the accuracy and precision of any task. Hence, Artificial Intelligence helps to solve complex problems that require difficult calculations and can be done without any error.

Reduce the Risk (Zero Risk)

It is also one of the biggest advantages of Artificial Intelligence. The technology of developing AI Robots can overcome many risky limitations of humans and do risky

things for us such as *defusing a bomb, oil and coal mining and exploring the deepest part of the ocean*, etc. So, it helps in any worst situation, either human or natural disasters too. AI Robots can be used in such situations where intervention can be hazardous.

24/7 Support

Unlike humans, a computer does not require breaks and refreshers. A normal human can continue work till 8 - 9 hours, including breaks and refreshers, while a computer machine can work 24x7 without any breaks and don't even get bored, unlike humans. Chatbots and helpline centres can be seen as the best example of 24/7 support of various websites continuously engaged in receiving customers queries and automatically resolved by Artificial Intelligence.

Perform Repetitive Jobs

We perform so many repetitive works in our day-to-day life, such as automatic replies to emails, sending birthday and anniversary quotes and verifying documents, etc. Therefore, Artificial Intelligence (AI) helps to automate the business by performing these repetitive jobs.

Faster decision

Unlike humans, a machine helps to take decisions faster than a human and carry out actions quicker. While taking a decision, humans analyze many factors while the machine works on what it is programmed and delivers the results faster. The best example of the faster decision can be seen in an online chess game in the third level. It is impossible to beat a computer machine because it takes the best possible step in a very short time, according to the algorithms used behind it.

New Inventions

For new inventions, AI is helping humans almost in each sector, it can be healthcare, medical, educational, sports, technology, entertainment or research industry etc. Using advanced AI-based technologies, doctors can predict various dangerous diseases like cancer at a very early stage.

Daily Applications

Now, we are all completely dependent on mobile and the internet for our daily routine. We use several applications like **Google map, Alexa, Apple's Siri, Window's Cortana, OK Google, taking a selfie, making a phone call, replying to a mail**, etc. Further, we can also predict the weather for today and upcoming days with the help of various AI-based methods.

Digital Assistance

Digital Assistance is one of the most powerful methods that help various highly advanced organizations to interact with users without engaged human resources. Digital Assistance helps users by gathering previous users queries and providing solutions that users want. The best example of digital Assistance can be seen on various websites in the form of chatbot support. A user asks something, and the computer machine provides relevant information like banking, education, travel, and ticket booking sites. Some chatbots are designed so that it's become hard to determine whether we're chatting with a chatbot or a human being.

AI in risky situations

Human safety is always the primary thing that is also taken care by machines. Whenever we need to explore the deepest part of the ocean or study space, scientists use AI - enabled machines in risky situations where human survival becomes difficult. AI can reach at every place where humans can't reach.

Disadvantages of Artificial Intelligence

Although artificial intelligence is one of the most trending and demanding technology around the globe, it still has some disadvantages. Some of the common disadvantages of AI are as follows:

High production cost

We are living in a technological world where we have to manipulate ourselves according to society. Similarly, a computer machine also requires time to time software and hardware updates to meet the latest requirements. Hence, AI also need repairing and maintenance, which need plenty of costs.

Risk of Unemployment

A robot is one of the implementations of Artificial intelligence, and it is replacing jobs and leading to serve unemployment (In some cases). Hence, according to some people, there is always a risk of unemployment because of robots and chatbots instead of humans. For example, in some more technology - oriented countries such as Japan, robots are widely used in manufacturing industries to replace human resources. However, this is not always the truth because as it replaces humans to enhance efficiency, it is also making more jobs opportunities for humans.

Increasing human's laziness

The new inventions of Artificial Intelligence are making humans lazier towards their work, resulting in humans being completely dependent on machines and robots. If this continues for more upcoming years, then our next generations will become entirely dependent on a machine, resulting in further unemployment and health issues.

Emotionless

We have always learned since childhood that computers or machines don't have emotions. Humans work like a team, and team management is a key factor for completing a target. However, there is no doubt that machines are much better when working efficiently, but it is also true that they never replace the human's connection that makes the team.

Lack of creativity

The biggest disadvantage of Artificial Intelligence is its lack of creativity. Artificial Intelligence is a technology that is completely based on pre - loaded data. However, Artificial Intelligence can learn over time with this pre - fed data and past experiences, but it cannot be creative like humans.

No Ethics

Ethics and morality are the two most important features of humans, but it isn't easy to incorporate both of these into Artificial Intelligence. AI is rapidly increasing uncontrollably in each sector, so if this continues for the upcoming decades, it may eventually wipe out humanity.

No improvement

Artificial Intelligence is a technology completely based on pre - loaded data and experience, so it cannot be improved as human. It can perform the same task repeatedly, but if you want some improvement and changes, you have to change the command for the same. However, it can store unlimited data that humans cannot, but also it cannot be accessed and used like human intelligence.

Government Policy for Artificial Intelligence

NITI Aayog provides over 30 policy recommendations to invest in scientific research, encourage reskilling and training, accelerate the adoption of AI across the value chain, and promote ethics, privacy, and security in AI. Its flagship initiative is a two - tiered integrated strategy to boost research in AI. AI policy is defined as **public policies that maximize the benefits of AI, while minimizing its potential costs and risks**. From this perspective, the purpose of AI policy is two - fold. On the one hand, governments should invest in the development and adoption of AI to secure its many benefits for the economy and society.

Legally regulating AI can ensure that AI safety becomes an inherent part of any future AI development initiative.

This means that every new AI, regardless of its simplicity or complexity, will go through a process of development that immanently focus on minimizing non - compliance and chances of failure.

Highly digitised industries such as **IT, financial services, telecommunications and media, and retail** have led the way in AI implementation According to a report by Microsoft, consultancy firm Bain & Company, and industry body Internet and Mobile Association of India (IAMAI), despite accounting for a meagre 1% of the global AI market, the country produces 16% of the world's AI talent pool—the third highest in the world

What are the components of Good AI Policy

- Enabling Beneficial AI Research and Development.
- Global Governance, Race Conditions, and International Cooperation.
- Economic Impacts, Labour Shifts, Inequality, and Technological Unemployment.
- Accountability, Transparency, and Explain ability.
- Surveillance, Privacy, and Civil Liberties.
- Fairness, Ethics, and Human Rights.

2. Conclusion

It is good that artificial intelligence helps us in many fields. But the production cost should be low, minimise the risk of unemployment don't wholly rely on these services as human being become lazy, should follow ethics in the use of artificial intelligence

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Conflict of Interest

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