**What is Artificial Intelligence?**

Artificial Intelligence or AI provides a computer program the ability to think and learn on its own. It is a simulation of human intelligence (hence, artificial) into machines to do things that we would normally rely on humans. There are three main [types of AI](https://www.simplilearn.com/tutorials/artificial-intelligence-tutorial/types-of-artificial-intelligence) based on its capabilities - weak AI, strong AI, and super AI.

* Weak AI - Focuses on one task and cannot perform beyond its limitations (common in our daily lives)
* Strong AI - Can understand and learn any intellectual task that a human being can (researchers are striving to reach strong AI)
* Super AI - Surpasses human intelligence and can perform any task better than a human (still a concept)

## Advantages of Artificial Intelligence

### 1. Reduction in Human Error

One of the biggest advantages of Artificial Intelligence is that it can significantly reduce errors and increase accuracy and precision. The decisions taken by AI in every step is decided by information previously gathered and a certain set of algorithms. When programmed properly, these errors can be reduced to null.

### 2. Zero Risks

Another big advantage of AI is that humans can overcome many risks by letting [AI robots](https://www.simplilearn.com/tutorials/artificial-intelligence-tutorial/humanoid-robots) do them for us. Whether it be defusing a bomb, going to space, exploring the deepest parts of oceans, machines with metal bodies are resistant in nature and can survive unfriendly atmospheres. Moreover, they can provide accurate work with greater responsibility and not wear out easily.

### 3. 24x7 Availability

There are many [studies](https://www.cnbc.com/2019/11/17/67percent-of-workers-say-spending-too-much-time-in-meetings-distracts-them.html) that show humans are productive only about 3 to 4 hours in a day. Humans also need breaks and time offs to balance their work life and personal life. But AI can work endlessly without breaks. They think much faster than humans and perform multiple tasks at a time with accurate results. They can even handle tedious repetitive jobs easily with the help of AI algorithms.

### 4. Digital Assistance

Almost all the big organizations these days use [digital assistants](https://www.simplilearn.com/online-digital-marketing-trends-article) to interact with their customers which significantly minimizes the need for human resources. You can chat with a [chatbot](https://www.simplilearn.com/creating-chatbots-guide-pdf) and ask them exactly what you need. Some chatbots have become so intelligent these days that you wouldn’t be able to determine whether you are chatting with a chatbot or a human being.

### 5. New Inventions

AI has helped in coming up with new inventions in almost every domain to solve complex problems. A recent [invention](https://news.mit.edu/2019/using-ai-predict-breast-cancer-and-personalize-care-0507) has helped doctors to predict early stages of breast cancer in women using advanced [AI-based technologies](https://www.simplilearn.com/how-ai-and-automation-are-changing-the-nature-of-work-article).

### 6. Unbiased Decisions

Human beings are driven by emotions, whether we like it or not. AI on the other hand, is devoid of emotions and highly practical and rational in its approach. A huge advantage of Artificial Intelligence is that it doesn't have any biased views, which ensures more accurate decision-making.

## Disadvantages of Artificial Intelligence

### 1. High Costs

The ability to create a machine that can simulate human intelligence is no small feat. It requires plenty of time and resources and can cost a huge deal of money. AI also needs to operate on the latest hardware and software to stay updated and meet the latest requirements, thus making it quite costly.

### 2. No creativity

A big disadvantage of AI is that it cannot learn to think outside the box. AI is capable of learning over time with pre-fed data and past experiences, but cannot be creative in its approach. A classic example is the bot [Quill](https://www.quill.org/) who can write [Forbes earning reports](https://www.forbes.com/sites/narrativescience/2015/10/12/eps-estimates-down-for-j-m-smucker-in-past-month/?sh=655a16097595). These reports only contain data and facts already provided to the bot. Although it is impressive that a bot can write an article on its own, it lacks the human touch present in other Forbes articles.

### 3. Increase in Unemployment

Perhaps one of the biggest disadvantages of artificial intelligence is that AI is slowly replacing a number of repetitive tasks with bots. The reduction in the need for human interference has resulted in the death of many job opportunities. A simple example is the chatbot which is a big advantage to organizations, but a nightmare for employees. A study by McKinsey predicts that AI will replace at least [30 percent](https://www.mckinsey.com/featured-insights/future-of-work/jobs-lost-jobs-gained-what-the-future-of-work-will-mean-for-jobs-skills-and-wages) of human labour by 2030.

### 4. Make Humans Lazy

[AI applications](https://www.simplilearn.com/tutorials/artificial-intelligence-tutorial/artificial-intelligence-applications) automate the majority of tedious and repetitive tasks. Since we do not have to memorize things or solve puzzles to get the job done, we tend to use our brains less and less. This addiction to AI can cause problems to future generations.

### 5. No Ethics

Ethics and morality are important human features that can be difficult to incorporate into an AI. The rapid progress of AI has raised a number of concerns that one day, AI will grow uncontrollably, and eventually wipe out humanity. This moment is referred to as the AI singularity.

Limitations

## . Access to Data

For prediction or decision models to be trained properly, they need data. As many people have put it, data is now one of the most sought-after commodities ousting oil. It has become a new currency. Currently, large troves of data sit in the hands of large corporate organizations.

These companies have an inherent advantage making it unfair to the little startups who have just entered the AI development race. If nothing is done about this, it would further drive a wedge in the power dynamic between big yech and startups.

## ****2. Bias****

The ways biases can creep into data-modeling processes (which fuel AI) is quite frightening, not to mention the underlying (identified or unidentified) prejudices of the creators to factor in. Biased AI is much more nuanced than just tainted data. There are many stages of the deep-learning process that bias can slip through and currently, our standard design procedures simply aren't aptly equipped to identify them.

As [this MIT Technology Review](https://www.technologyreview.com/2019/02/04/137602/this-is-how-ai-bias-really-happensand-why-its-so-hard-to-fix/?ref=hackernoon.com) article points out, our current method of even designing AI algorithms aren't really meant to identify and retroactively remove biases. Since most of these algorithms are tested only for their performance, a lot of unintended fluff flows through. This could be in the form of prejudiced data, a lack of social context and a debatable definition of fairness.

## 3. Computing Time

Even though technological advancements have been rapidly extending in recent years, there are still some hardware limitations like limited computation resources (for RAM and GPU cycles) that we have to overcome. Here again, established companies have a significant advantage, given the costs that arise from developing such custom and precise hardware.

## 4. Cost

Mining, storing and analyzing data will be very costly both in terms of energy and hardware use.

The estimated training cost for the GPT-3 model was $4.6 million. Another video (see below) predicted that for a model similar to the brain, the training costs would be substantially higher than GPT-3, coming in at around $2.6 billion.

The advantages of Artificial intelligence applications are enormous and can revolutionize any professional sector. Let’s see some of them

**1) Reduction in Human Error:**

The phrase “**human error**” was born because humans make mistakes from time to time. Computers, however, do not make these mistakes if they are programmed properly. With Artificial intelligence, the decisions are taken from the previously gathered information applying a certain set of algorithms. So errors are reduced and the chance of reaching accuracy with a greater degree of precision is a possibility.

**Example:** In Weather Forecasting using AI they have reduced the majority of human error.

**2) Takes risks instead of Humans:**

This is one of the biggest advantages of Artificial intelligence. We can overcome many risky limitations of humans by developing an AI Robot which in turn can do the risky things for us. Let it be going to mars, defuse a bomb, explore the deepest parts of oceans, mining for coal and oil, it can be used effectively in any kind of natural or man-made disasters.

**Example:** Have you heard about the **Chernoby**l nuclear power plant explosion in Ukraine? At that time there were no AI-powered robots that can help us to minimize the effect of radiation by controlling the fire in early stages, as any human went close to the core was dead in a matter of minutes. They eventually poured sand and boron from helicopters from a mere distance.

AI Robots can be used in such situations where intervention can be hazardous.

**3) Available 24x7:**

An Average human will work for 4–6 hours a day excluding the breaks. Humans are built in such a way to get some time out for refreshing themselves and get ready for a new day of work and they even have weekly offed to stay intact with their work-life and personal life. But using AI we can make machines work 24x7 without any breaks and they don’t even get bored, unlike humans.

**Example:** Educational Institutes and Helpline centers are getting many queries and issues which can be handled effectively using AI.

**4) Helping in Repetitive Jobs:**

In our day-to-day work, we will be performing many repetitive works like sending a thanking mail, verifying certain documents for errors and many more things. Using artificial intelligence we can productively automate these mundane tasks and can even remove “**boring**” tasks for humans and free them up to be increasingly creative.

**Example:** In banks, we often see many verifications of documents to get a loan which is a repetitive task for the owner of the bank. Using AI Cognitive Automation the owner can speed up the process of verifying the documents by which both the customers and the owner will be benefited.

**5) Digital Assistance:**

Some of the highly advanced organizations use digital assistants to interact with users which saves the need for human resources. The digital assistants also used in many websites to provide things that users want. We can chat with them about what we are looking for. Some chatbots are designed in such a way that it’s become hard to determine that we’re chatting with a chatbot or a human being.

**Example:** We all know that organizations have a customer support team that needs to clarify the doubts and queries of the customers. Using AI the organizations can set up a Voice bot or Chatbot which can help customers with all their queries. We can see many organizations already started using them on their websites and mobile applications.

**6) Faster Decisions:**

Using AI alongside other technologies we can make machines take decisions faster than a human and carry out actions quicker. While taking a decision human will analyze many factors both emotionally and practically but AI-powered machine works on what it is programmed and delivers the results in a faster way.

**Example:** We all have played Chess games in Windows. It is nearly impossible to beat CPU in the hard mode because of the AI behind that game. It will take the best possible step in a very short time according to the algorithms used behind it.

**7) Daily Applications:**

Daily applications such as Apple’s **Siri**, Window’s **Cortana**, Google’s **OK Google** are frequently used in our daily routine whether it is for searching a location, taking a selfie, making a phone call, replying to a mail and many more.

**Example:** Around 20 years ago, when we are planning to go somewhere we used to ask a person who already went there for the directions. But now all we have to do is say “**OK Google** where is Visakhapatnam”. It will show you Visakhapatnam’s location on google map and the best path between you and Visakhapatnam.

**8) New Inventions:**

AI is powering many inventions in almost every domain which will help humans solve the majority of complex problems.

**Example:** Recently doctors can predict breast cancer in the woman at earlier stages using advanced AI-based technologies.

As every bright side has a darker version in it. Artificial Intelligence also has some disadvantages. Let’s see some of them

**1) High Costs of Creation:**

As AI is updating every day the hardware and software need to get updated with time to meet the latest requirements. Machines need repairing and maintenance which need plenty of costs. It’ s creation requires huge costs as they are very complex machines.

**2) Making Humans Lazy:**

AI is making humans lazy with its applications automating the majority of the work. Humans tend to get **addicted** to these inventions which can cause a problem to future generations.

**3) Unemployment:**

As AI is replacing the majority of the repetitive tasks and other works with robots,human interference is becoming less which will cause a major problem in the employment standards. Every organization is looking to replace the minimum qualified individuals with AI robots which can do similar work with more efficiency.

**4) No Emotions:**

There is no doubt that machines are much better when it comes to working efficiently but they cannot replace the human connection that makes the team. Machines cannot develop a bond with humans which is an essential attribute when comes to Team Management.

**5) Lacking Out of Box Thinking:**

Machines can perform only those tasks which they are designed or programmed to do, anything out of that they tend to crash or give irrelevant outputs which could be a major backdrop.