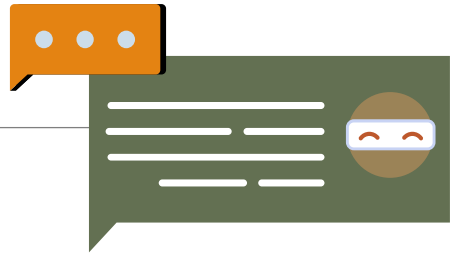
Artificial Intelligence





Dept. Medical Instrument Devises

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(AI)

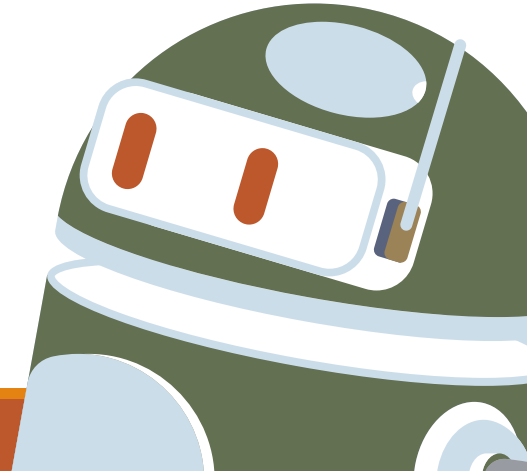


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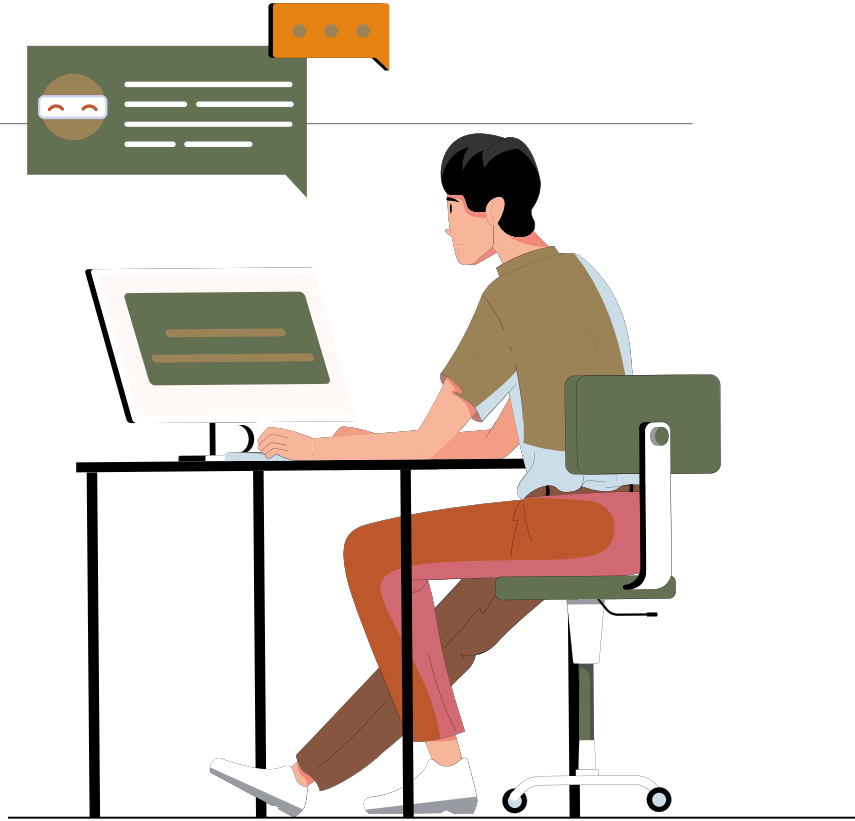
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What is artificial intelligence?

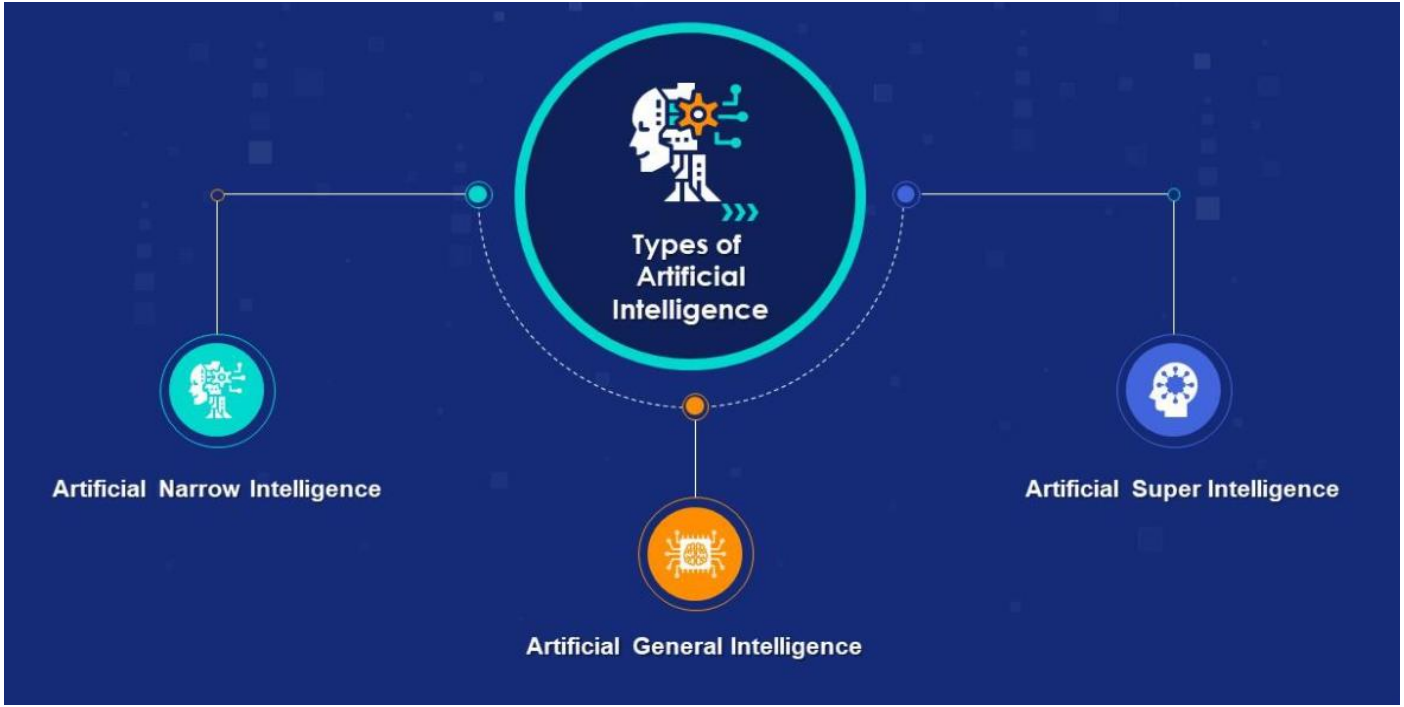
(AI)

Artificial intelligence

Artificial intelligence (AI) refers to the simulation of human intelligence in machines, allowing them to perform tasks that typically require human intelligence. These tasks can include problem-solving, learning, understanding natural language, recognizing patterns, making decisions, and more.



02 ⟶ Artificial intelligence Levels



Cont.

1. **Narrow AI (or Weak AI):** This type of AI is specialized and designed to perform a specific task or a narrow range of tasks. It excels at its designated task but lacks the general intelligence and adaptability of humans.
2. **General AI (or Strong AI):** General AI refers to machines with human-level intelligence that can understand, learn, and perform a wide variety of tasks as competently as humans.

3. Artificial Superintelligence (ASI) :refers to a hypothetical level of artificial intelligence that surpasses human intelligence and capabilities in every aspect. It represents an AI system that not only possesses general intelligence (the ability to understand, learn, and adapt to any task or domain, like a highly intelligent human) but also has the capacity for superhuman cognitive abilities, problem-solving, and innovation.

03 →

Types of artificial intelligence

(AI)

Types of artificial intelligence

According to different experts, there two basic classification of artificial intelligence as following :



(a) Machine Learning ⟶

Machine Learning (ML) is a subfield of artificial intelligence (AI) that focuses on the development of algorithms and statistical models that enable computer systems to learn and make predictions or decisions without being explicitly programmed. Examples of ML : **Data , algorithms, Training, Validation and Testing.**



(b) Deep Learning ⟶

Deep Learning is a subfield of machine learning that focuses on the use of artificial neural networks to model and solve complex tasks. It is called "deep" because it involves neural networks with multiple layers (deep architectures) between the input and output layers, allowing it to automatically learn and represent hierarchical patterns and features from data. Examples of Deep Learning : **Artificial Neural Networks (ANNs), Deep Neural Networks (DNNs).**

AI VS Machine Learning VS Deep Learning



- Artificial Intelligence originated around 1950s
- AI represents simulate intelligence in machines
- AI is a subset of data science
- Aim is to build machines which are capable of thinking like humans

Artificial Intelligence



- Machine Learning originated around 1960s
- Machine learning is the practice of getting machines to make decisions without being programmed
- Machine learning is a subset of AI & Data Science
- Aim is to make machines learn through data so that they can solve problems

Machine Learning



- Deep Learning originated around 1970s
- Deep Learning is the process of using artificial neural networks to solve complex problems
- Deep Learning is a subset of Machine Learning, AI & Data Science
- Aim is to build neural networks that au6tonetically discover patterns for feature detection

Deep Learning

03 →

Main uses of artificial intelligence

(AI)

Main uses

(a) Virtual personal assistants ⟶

These are the well-known chatbots that allow us to interact with them according to our search history

(b) Business and finance ⟶

In this case, AI brings the possibility of generating greater security, offering new operations and being aware of relevant market information

(c) Education ⟶

It allows to personalize them according to the students, to control attendance and evaluations, to establish teaching-learning strategies

Main uses

(d) Commercial ⟶

It allows to know and recommend what the customer needs, predicting trends and making very detailed analysis

(e) Health ⟶

Artificial intelligence is used in healthcare, specifically in chatbots that ask us about our symptoms in order to make a diagnosis. By combining certain characteristics in common, a possible solution to the problem presented by the patient can be generated without the need of a human being

04 →

Advantages and disadvantages of AI

(AI)

Advantages of artificial intelligence

1- Automation of repetitive tasks ⟶

AI makes our day-to-day life much easier, as machines can perform tasks that are difficult for us automatically

2- Reduces human error ⟶

Fewer errors, since there is little human involvement and the tasks are performed automatically, the probability of error is greatly reduced

3- More room for creativity ⟶

It favors the creative process of the human being, since it leaves us with more time to think freely about future tasks or work actions

Advantages of artificial intelligence

4- Increased accuracy ⟶

By reducing the likelihood of error, artificial intelligence provides high accuracy in decision making

5- Decision making ⟶

When making decisions, AI plays a fundamental role due to its agility in the search and connection of information and also the analysis of the data collected

Disadvantages of artificial intelligence

1- Difficulty of access to data ⟶

For an artificial intelligence to work properly, it must have updated and reliable data. This does not always happen in this way, because being just a machine, sometimes it does not have all the necessary data to make decisions appropriate to the needs

⟶

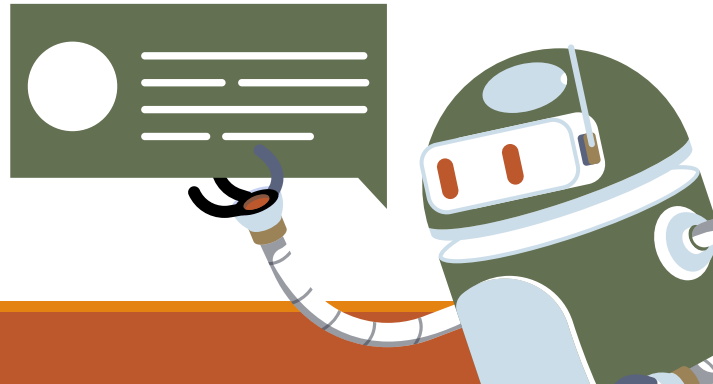
2- Lack of qualified professionals

As this is a new technology, the number of qualified professionals who can handle these tools is very limited

Disadvantages of artificial intelligence

3- Developing them is expensive ⟶

The cost is extremely high. In order to replace or match the human figure with machines, it is essential to have a large amount of money that can cover the necessary development and maintenance costs of these tools



Thanks!



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