

Faculty of Economics Commerce and Management Sciences

Finance and Accounting Department

Introduction to Artificial Intelligence

Chapter 01

Introduction to Artificial Intelligence and its Importance

Mr. Bouchelaghem Zakaria

Contents



01. Definition of Artificial Intelligence and its Role in Modern Sciences.

02. The Importance of Artificial Intelligence in the Economic, Healthcare, and Educational Sectors.

03. The Difference Between Artificial Intelligence and Traditional Systems.

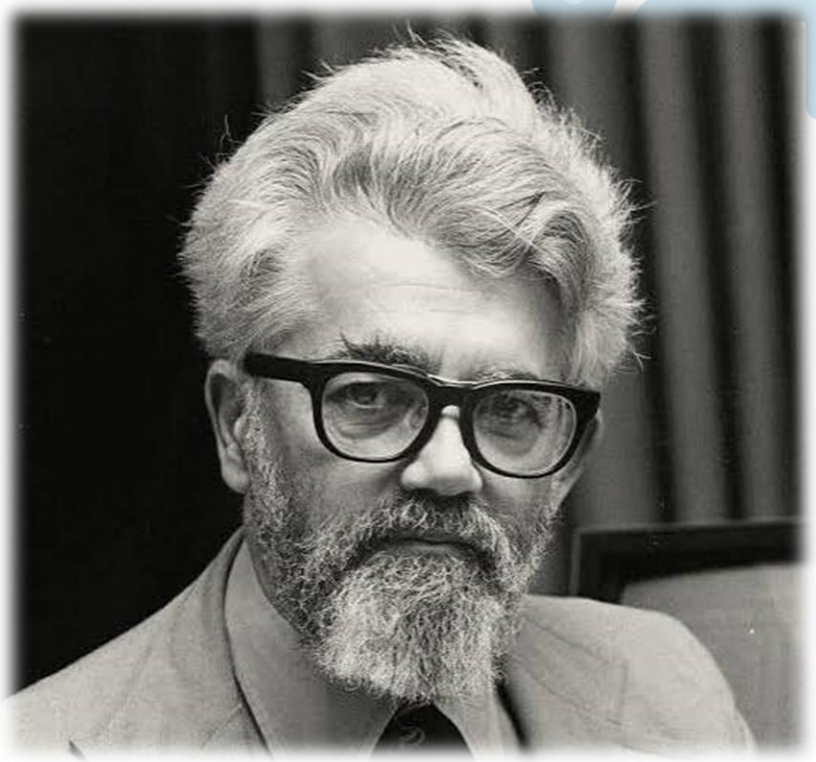
04. Key Modern Artificial Intelligence Tools and Techniques.

05. Artificial Intelligence Applications in Data Analysis and Decision-Making.

01 - Definition of Artificial Intelligence and its Role in Modern Science

- **Definition:**

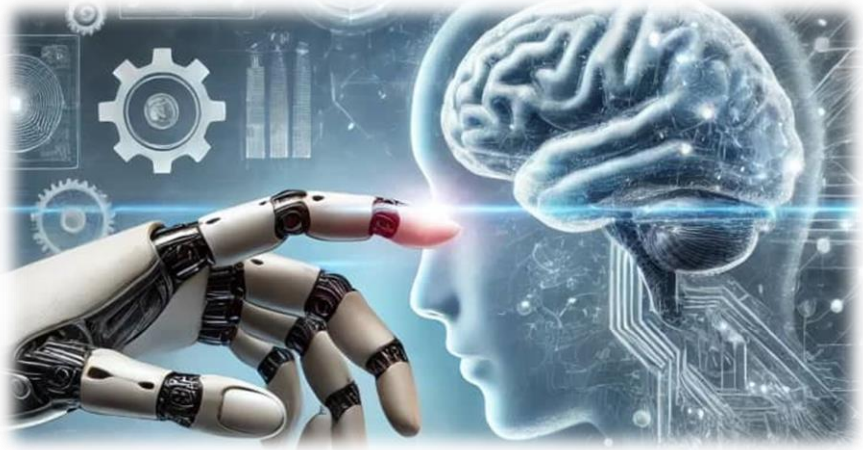
The term artificial intelligence was first used in 1956 by researcher Jhon MC Carthy.



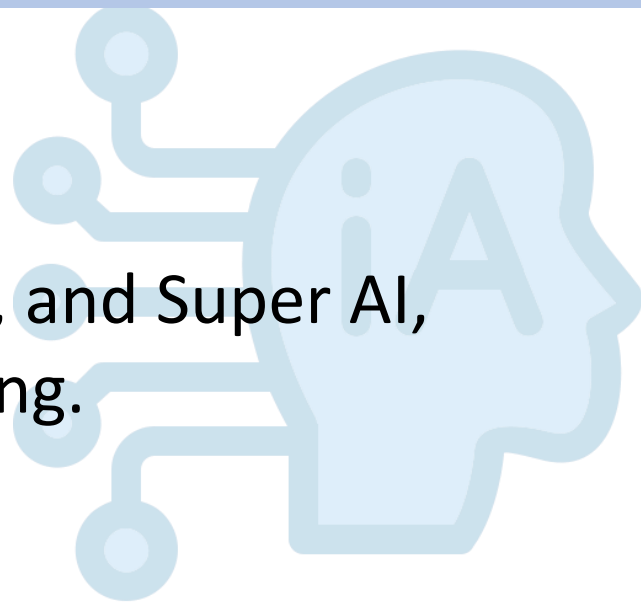
Definition:

It defined as a range of technologies that learn, apply logic, and solve problems much like the human brain.

Artificial Intelligence has been also defined as the science of transforming machines into intelligent machines, capable of performing mental functions similar to those in the human brain.







- **Definition:**

Artificial Intelligence has three types: Narrow AI, General AI, and Super AI, and many branches like Machine Learning, and Deep Learning.

The Role of Artificial intelligence in modern sciences:

Artificial Intelligence has become one of the most important technological developments of the current century.

It has transformed the way scientists do research, analyze data, solve complex problems, and make discoveries across numerous scientific disciplines.

AI is no longer limited to science of fiction or computer laboratories. Instead, it has become an essential tool in medicine, biology, chemistry, astronomy, and economics across all its branches.

02 - The Importance of Artificial Intelligence in the Economic, Healthcare, and Educational Sectors

Economic Sector:

The world is witnessing major economic transformations driven by the rapid development of AI which is one of the significant innovations to impact various sectors of economy.



AI drives these sectoral changes by:

- Replacing human intelligence, either partially or completely, in a fast and efficient manner.
- Handling many routine tasks that previously required human intervention, such as data analysis, complex calculations.
- Predict consumer behavior with greater accuracy, thus reducing the margin of human error.
- Through its superior ability to analyze data quickly and accurately, artificial intelligence can generate new ideas and predictions based on past patterns that may not have been discovered yet.

Healthcare Sector:

Significant progress has been made in applying artificial intelligence to the health field:

- Improving medical imaging algorithms, surpassing human capabilities in diagnosing diseases, enabling earlier and more effective treatments.
- It's use in developing new drugs and predicting patient response to certain treatments leads to improved treatment outcomes and reduced costs.
- Development of prosthetic limbs and organ transplantation.
- Assisting people with paralysis and neurological diseases using a nerve chip.

Educational Sector:

Artificial Intelligence has a significant importance in the educational process:

- It helps improve the teaching process and develop and modernize its methods. AI systems can provide teachers with valuable information about their students' learning styles and abilities.
- It helps enhance students' leadership skills by enabling them to learn independently, understand their own levels, and develop their leadership abilities.
- With AI, humanoid robots will become increasingly present in classrooms, not to replace teachers, but to assist them.

03 - The Difference Between Artificial Intelligence and Traditional Systems

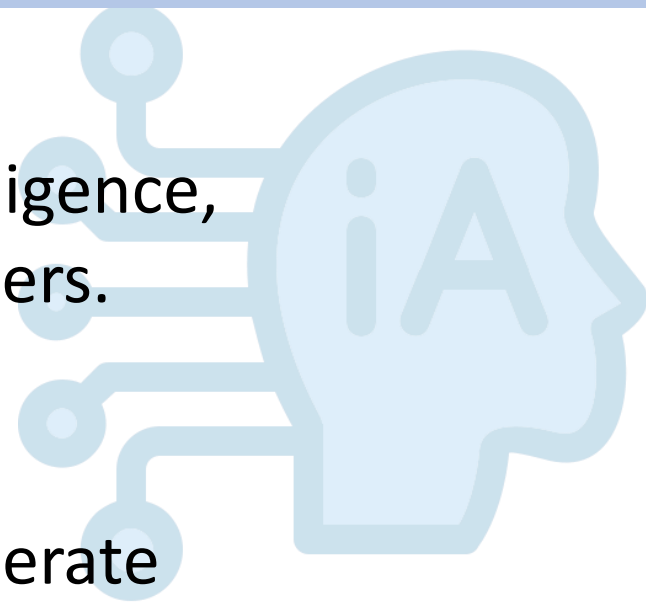
The key difference is that traditional systems execute rules and instructions written in advance by programmers, while artificial intelligence can analyze data, learn from it, and produce predictions or decisions with varying degrees of independence.

03. The Difference Between Artificial Intelligence and Traditional Systems

The Side	Traditional Systems	Artificial Intelligence
Method of Operation	It relies on fixed rules, such as: "If X happens, execute Y."	It learns patterns from data or uses a model to make a decision.
Source of Knowledge	Programmers and experts.	Data and sometimes rules with data.
Handling Unexpected Situations	It often fails or requires a new rule.	Can generalize and provide a probabilistic prediction.
Outputs	Often a specific and predictable outcome.	Classification, prediction, or recommendation with a probability or confidence score.
Explanation	Easier to understand and follow.	It can be difficult to interpret, especially in deep networks.
Maintenance	Manually edit rules.	Performance monitoring, retraining, and data updating.

Table 01: Direct Comparison Between Traditional Systems and Artificial Intelligence.

04 - Main modern Artificial Intelligence tools and technologies



It's include large language models, generative artificial intelligence, deep learning, computer vision and AI agents and many others.

- **Large Language Models (LLMs):**

Systems trained on trillions of words to understand and generate human language, such as:
ChatGPT from OpenAI, Gemini from Google, and Claude from Anthropic.

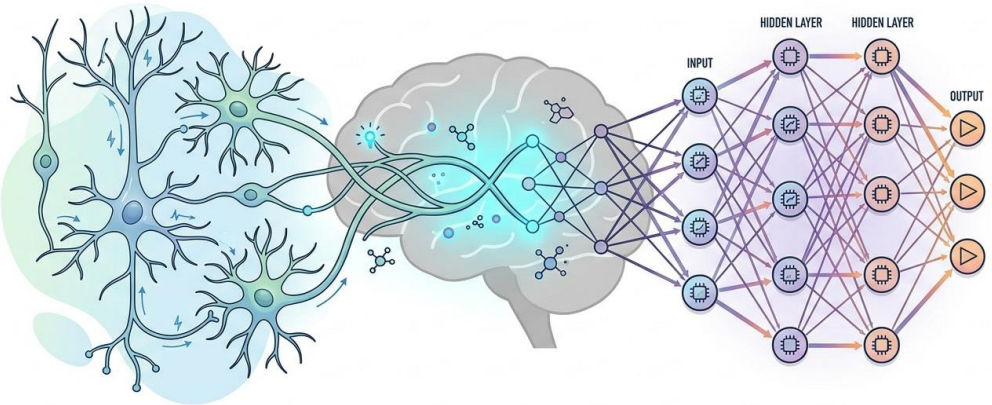
ChatGPT Gemini Claude

Generative AI:

It produces new content (texts, images, videos, music, programming materials) from scratch, and is considered one of the most prominent innovations.

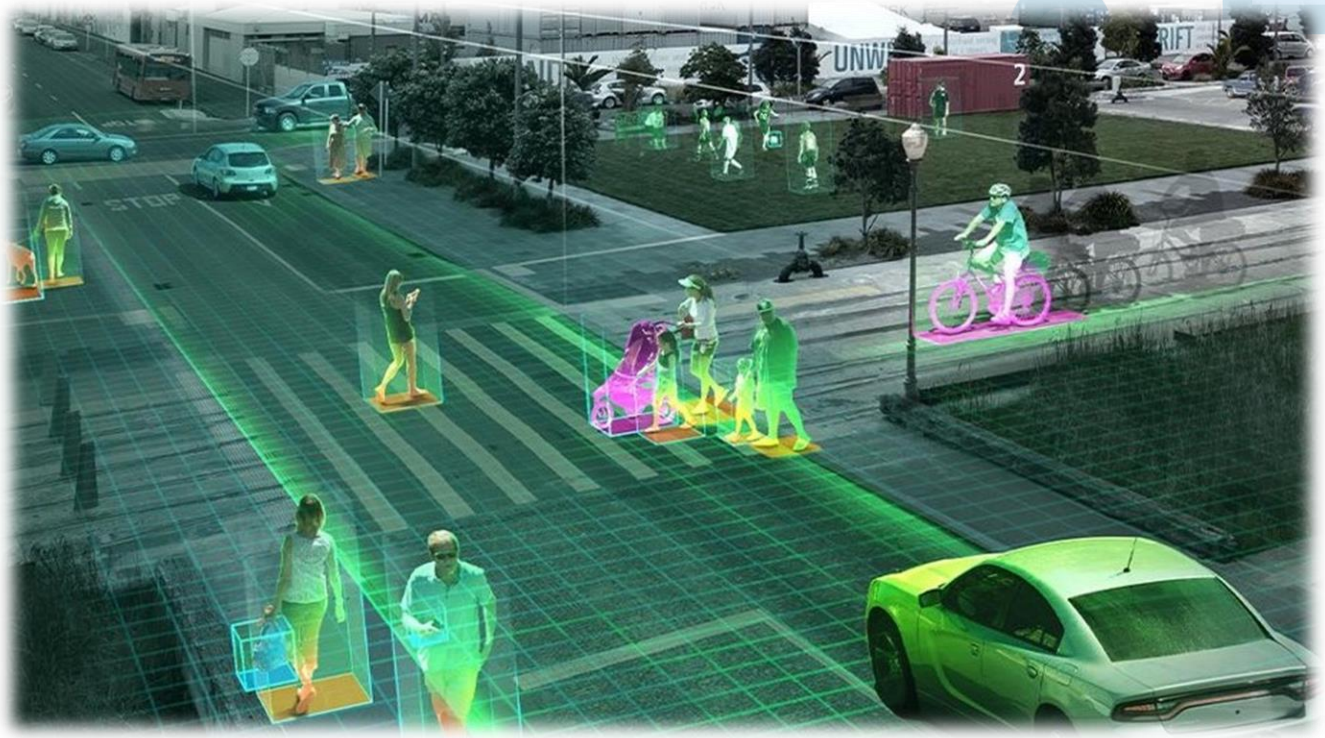
Neural Networks and Deep Learning:

It mimics the workings of the human brain to extract patterns from data, and is used in:
Instant Translation (Google Translate),
Image Recognition (Google Photos),
and Self-Driving Cars (Tesla).



Computer Vision:

It understands images and videos using neural networks that monitor patterns and objects, enabling automatic image classification and face detection.



AI Agents:

Intelligent systems capable of performing complex tasks independently, and it's among technologies that shape the world in 2026.



05 - Artificial Intelligence Applications in Data Analysis and Decision-Making

Artificial intelligence can analyze data faster and more accurately than humans. It can process large and complex datasets in a very short time, detect local patterns, and extract effective and detailed information.

There are many areas where AI can be used for data analysis. In marketing, AI can analyze consumer behavior and provide effective marketing strategies.



In finance, AI can be used to analyze patterns and fluctuations in the stock market and make informed investment decisions.

AI analytics provide deep insights into data and enable organizations to make more accurate and intelligent decisions by analyzing historical data and predicting future trends.

AI can provide data-driven recommendations to help organizations make strategic decisions and achieve a competitive edge.



References:

- Mohadi, Bouaziz. (2025). Artificial Intelligence Applications and Their Uses in the Accounting Profession: A Field Study on a Sample of Accounting Professionals.
- Kahoul, benzoui. (2025). The Imperatives of Artificial Intelligence in the Health Sector: A Reading of the Mechanisms for Adapting the Algerian Health Sector.
- Zerrouki, beriha. (2026). The Significance of Artificial Intelligence and its Role in Advancing Education and Enhancing the Learning Process.