\*What is machine learning?

One of the branches of Artificial Intelligence science based on programming computers of all kinds to be able to perform tasks and execute commands entrusted to them based on the data available to them and their analysis, while limiting or completely absent human intervention in directing them.

\*When did machine learning appear?

Machine learning first appeared in 1956 by John McCarthy from his workshop

The purpose of this workshop was to search for ways to enable the machine to simulate aspects of human intelligence

During the period from 1960-1980

\*Machine learning development stages:

1-The first research paper on machine learning and neural networks appeared in 1943 by neuroscientist Warren McCulloch

2-In 1950, scientist Alan Turing created the world-famous Turing Test. This test is fairly simple, it is based on training a computer to have the ability to convince a human that it is a human and not a computer.

3-In 1958, the first artificial neural network was designed under the name Perastron

4-In 1982, interest in neural networks began again. The scientist John Hopfield proposed creating a neural network with bidirectional lines to simulate the work of human neurons. Moreover, Japan announced in the same year that it was focusing on making more advanced artificial neural networks, which prompted scientists to conduct more rigorous research

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-6In 1986, 3 scientists from Stanford University worked on developing an algorithm that had been created in 1962, and used it to develop an artificial neural network consisting of layers. .

-7The year 1997 comes as the real breakthrough for machine learning through the IBM Deep Blue computer, which was able to defeat the world chess champion at the time. Since then, artificial intelligence and machine learning have begun to flourish and develop, and machine learning and artificial intelligence have become an integral part of our daily lives.

\*\* The importance and use of machine learning:

-1 Providing a greater amount of data necessary for decision-making.

-2The ability to store data as much as possible.

Computerized data processing is less financially costly than employing human hands.

-3Analyze the largest amount of data at all levels, whether simple or complex.

-4Ensuring more accurate results and decisions in the fastest time.

-5Enabling establishments and organizations to monitor appropriate opportunities to achieve profits and avoid unknown risks.

-6Assistance in choosing the optimal decision from a range of available alternatives.

\*\*Data base of machine learning:

* **One of the most important things that must be known in the field of machine learning is mathematics and computer science because it depends on them in the first place. One of the most important things is also time management. In our daily lives, we must know this skill. In the field, the most successful machine learning projects will solve real pain points and focus more on solving problems and also need experience, it can be gained from someone who has this experience – rapid prototyping should be finding ideas as quickly as possible effective during the learning process Automation… All of these skills are personal skills. Let’s move on to technical skills. First, you must be familiar with the language of Python, as it is the global language of machine learning. It is important to have a background, even if a simple one, and sometimes the Python language is not enough in many cases, you will face projects That requires hardware to increase speed as well as chapters, memory management and links. If you also choose to do any machine learning that includes Unity, understanding C++ will make learning C# easier. At the very least, proper knowledge of a statically typed language like C++ will really help with interviewing. Even if you mainly use Python, understanding C++ will make it easy to upgrade a Python library like Numba. You also have to know step algebra and get used to matrices, matrix multiplications, calculus, statistics, physics, and numerical analysis. Finally, you must learn new skills as this field develops. Fast and big.**

\*\* What is the relationship between machine learning, artificial intelligence and data collection:

The relationship between artificial intelligence, machine learning and data mining in the form of 3 umbrellas of varying size; Where the science of artificial intelligence is considered the largest umbrella that includes directly under it the umbrella of machine learning, while the latter embraces the umbrella of data mining and extraction. Ultimately, it depends on different styles of decision-making and thinking As for Machine Learning, it represents the role of the layer that follows the top of the pyramid, and its role in the implementation of the task of automation, programming, and machine learning is to use the data available to it in decision-making, and here appears the role of Data Mining by searching for relevant data and employing it in performing the task.

**المراجع**

**-1**Renée Lynn Midrack، What is Machine Learning

-2[**Machine Learning**](https://www.sas.com/en_us/insights/analytics/machine-learning.html)، من موقع: www.sas.com، ا

الفريق

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