Artificial Intelligence - A New Field of Computer Science Which Any Business Should Consider

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Abstract

Anyone can remember what it meant for business IT solutions a few years ago. On the market there is a clear segmentation between ERP, CRM, Document Management, BI, and so on. A segmentation that has gradually added other elements, such as Analytics, and, more recently, Big Data, with its leading corollary, Cognitive Computing. Technological developments, and especially business developments, marked by the growing need for real-time, real-world information from growing data volumes, have made such a segmentation on the business solutions market start to fade Clear boundaries. Obviously, we can not speak at present about an integrative solution that includes all the sub-segments of this market. Such a fully integrated solution would be extremely expensive and perhaps too rigid to meet the needs of all market players.

Key words: Artificial Intelligence, Predictive Analytics, Cognitive Computing
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1. Introduction

It is very well known and popularized progress in science and technological progress in particular. With the invention of the transistor, a series of perspectives have emerged that have materialized over the twentieth century in a variety of areas: from a common TV today to the latest generation of medical devices in which robots are used for difficult operations.

On the other hand, two natural questions arise in the mind of the one who has tangency with technology, be it specialist or dilettante: is the technology evolution of the last decade a quantity or a quality? Do the same technological developments produce useful tools or only satisfy the user's abilities? (Russel, Stuart J.; Norvig, Peter, 2003)

To try to answer the first question, we must look at the evolution of the central element of information technology, namely the computer: if at first a computer had the dimensions of a block of several floors and performed simple arithmetic or logical operations, May contain a complicated and powerful processor, the brain of any computer.

Looking at this evolution, we are tempted to argue for both quantitative and qualitative evolution, in the sense that, for example, the use of high performance technologies allows the concentration of millions or even billions of transistors on a surface unit of several tens of square centimeters In the sense that research in information technology support fields has allowed the development of very complex applications: Boolean logic has attributed to the computer the processing faculty, the development of specific syntaxes in the computer language allowed the emergence of programming languages of different levels Through which man can communicate

different tasks to the computer, and he or she can execute them, or a more recent and advanced example, medical research on the way the human brain works, has allowed the creation of artificial neural networks that instead of using the neuron Small processing units, and instead of linking Synaptic ones use synaptic weights, through which the input data changes to a certain weight or are modified with a certain weight by the intermediate levels of the neural networks (Hutter, Marcus 2005) .

This qualitative and quantitative evolution is strictly associated with science and technology and is due to the concentrated research efforts of scientists in vast areas. But going to another level, if we talk in a narrow sense, of the so-called Artificial Intelligence and its ability to reach? Or even surpass human intelligence, it is appropriate to present some differences of essence between these two types of intelligence (Nilsson, Nils, 1998):

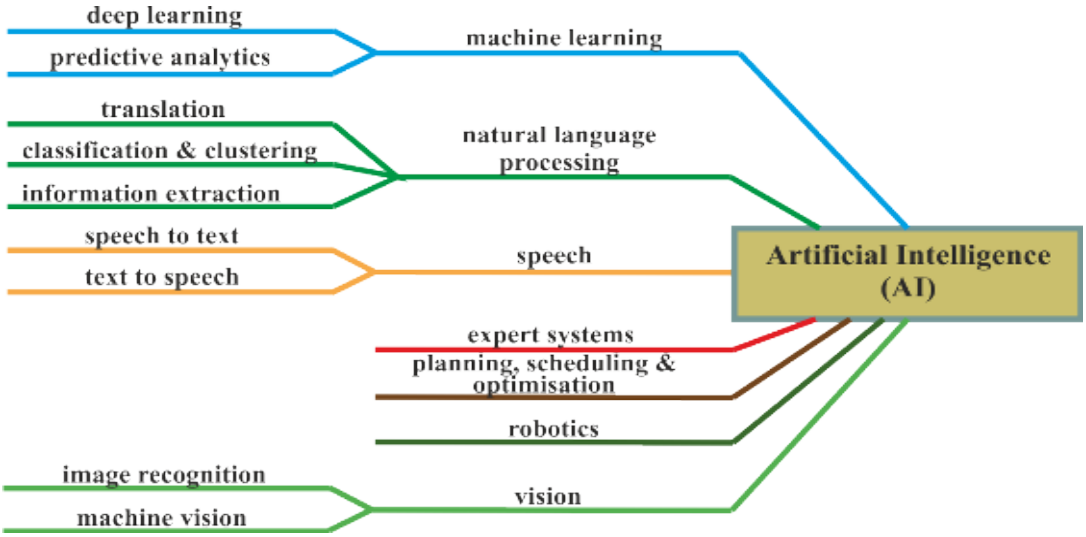
- What materialized in artificial intelligence is a copy of a brain algorithm, a copy that brought some experimental results based on the idea of training, on probabilistic computation, in this sense the artificial intelligence learns to think in a certain way ?? Application-specific, learn to recognize, mediate situations and nothing more;
- Larger acceptance of artificial intelligence includes artificial sight and form recognition, a field that also bases on laborious mathematical reasoning, image processing and extraction of essential elements, but the identification of these essential elements is the exclusive feature of human intelligence;
- In a broader sense, artificial intelligence includes the coordination and management of complex industrial processes, processes that require a lot of finesse and which require a hostile work environment in which man would be difficult to handle; Here Artificial Intelligence is limited to achieving good synchronization and also to performing a series of tasks in a sequential way, tasks assigned to priority levels, and the decision as to which process is executed is based on those levels of Priorities that are set by man.

2. What is AI?

AI is a big forest of academic and commercial work around "the science and engineering of making intelligent machines," in the words of the person who coined the term artificial intelligence, John McCarthy.

A thorough and hype-free review of AI in business was published recently by Deloitte, Demystifying Artificial Intelligence, suggesting the term "cognitive technologies" to encourage focus on the specific, useful technologies that emerge from the broad field of AI (Poole, David; Mackworth, Alan; Goebel, Randy, 1998).

However labeled, the field has many branches, with many significant connections and commonalities among them. The most active today are shown here.



Every user does hundreds of small actions when they visit a site. Through the "Deep Learning" technology, every piece of information left by the client on the site can be tracked, says RTB House, a company specializing in retargeting campaigns (Hubert B. Keller, 2000).

In this way, a pattern can be identified in the decision-making process. With a wider range of user information, this method helps companies estimate individual conversion rate (CR), maximizing the profitability of a campaign, more RTB House analysis.

In this way, a user's conversion potential can be quickly and safely set, which is essential to streamline customized retransfer campaigns.

This technology can also be used for non-click users, an essential aspect for digital marketing companies. Until now, they could not get this information.

The technology is built on mathematical algorithms that, by using recurrent neural networks, help identify more detailed patterns of a user's buying potential.

Bartlomiej Romanski, RTB House Technology Director, says conversion predictions, which estimate the likelihood of a user behaving in the way the advertiser wants, play an essential role in online advertising (Ioan Georgescu, 1985).

"We use this new technology to accurately predict how a user will behave, what purchase intentions they have and what decisions they make, and that personalized ads will be targeted more effectively," Romanski explains.

There are four steps for a company to reach Artificial Intelligence:

Firstly, data needs to be collected, stored and analysed. This is outdated thinking and tells you something about the past.

Secondly, machines start to make predictions based on the data. These predictions help humans to make faster, easier and better decisions.

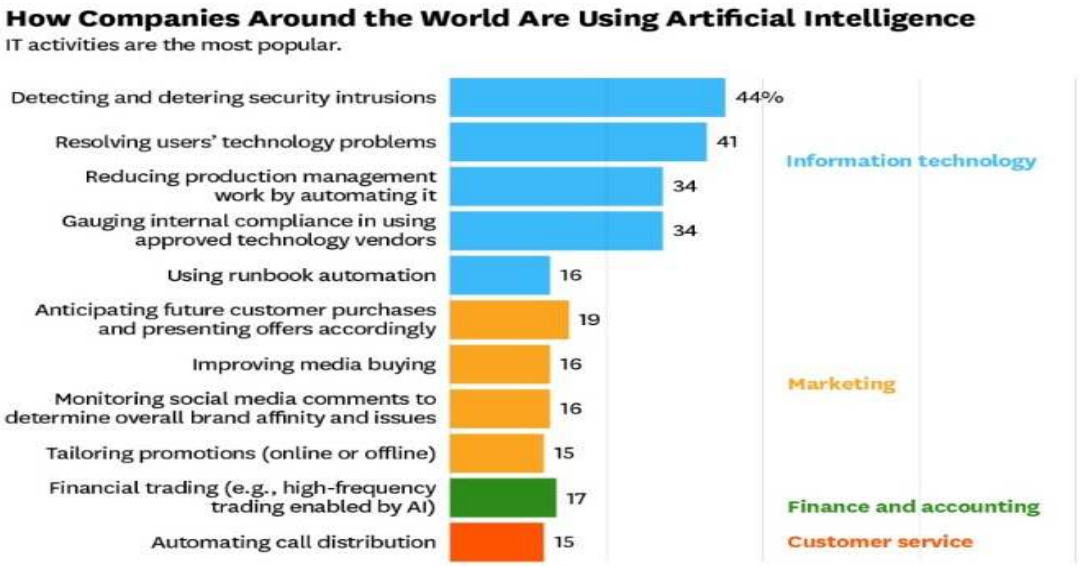
Thirdly, machines make predictions, execute them, measure the results and then change the inputs and constraints to optimize the output goal.

Fourthly, machines achieve automation. They are becoming motivated cognitive agents and are able to use their various learned behaviours to create new transferable knowledge.

Most (old-economy) companies are at stage one or below. They know they have data and start collecting it.

Many digital companies (ecommerce, mobile, gaming) work with their data and are often on stage two.

Next there is an example of how companies around the world are using Artificial Intelligence:



3. Conclusions

In the last decades, knowledge and information have become extremely important. With the help of these, the power of thought is expanded, both in the field of business and in other fields, through artificial intelligence. Knowledge is the new resource that, together with work, money and earth, is the basis of any business. Today business success depends on their capabilities to protect, acquire and use their own knowledge, that is the ability of the firm to develop its own knowledge management.

We live in a world that changes every minute. This change affects organizations and allows people to change their intellectual capabilities. The key to change and growth is to raise its awareness, to exchange ideas, to find ways to innovate that put both people and companies at the forefront of the competition. This involves learning, innovation and adopting a behavior designed to enhance performance and quality. In this way intelligent people need intelligent organizations and vice versa.

New technologies and softwares allow computers to mimic human behavior in various ways. Financial analysts use a variety of artificial intelligence systems to analyze financial activity and perform other operations in the field. Hospitals use artificial intelligence to plan treatments, allocate places for patients, diagnose and choose the right treatment. Many government agencies use artificial intelligence for armed forces management.

Credit card companies and banks use artificial intelligence to detect and prevent fraud through cards. Artificial Intelligence is found in airline management, food preparation, oil exploration, etc.

The attempts to extend the use of computers to everything that can be solved by humans have led to the emergence of a new field of computer science: Artificial Intelligence (AI).

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