Artificial Intelligence – where do you start?

AI, or artificial intelligence has become a particularly topical subject in the media lately, but in a sense is not being talked about in any great depth considering its significance not just today, but in the near and distant future.

Artificial intelligence is already in existence and has been or many years, or even decades. As far back as 1950, Alan Turing [1912-19566] was considered as the inventor of the computer, but is known for his work related to the Enigma Machine from World War II. But he also put forward the idea of a human operator 'talking' to a computer via a keyboard where a simple program simulating dialogue could give the effect of a human operator at the other end and this may be indistinguishable from a real person being communicated with. This idea occurred around 136This some time later led to Josef Wizenbaum developing an unsophisticated 'psychiatrist' program which could answer simple questions, as if it was a real person answering. This could easily be fooled, but the chatbots of today are much more convincing.

Other obvious examples of AI are Amazon's Alexa, Microsoft's Cortana, Apple's Siri and also Google Assistant. Whereas Google Chrome (a search engine) simply responds to requests for information, being a combination of an encyclopaedia and dictionary, albeit in a very convenient modus operandi, it is not considered to be an AI device, although like many software programs it is almost certainly assisted by AI features.

Examples of AI already in use are: online customer support (webchats, etc), recommendation systems used by Netflix, Amazon Spotify and YouTube. All of these use AI algorithms to analyse user behaviour and preferences.

AI is already used extensively in healthcare diagnostics, for example analysing medical images such as X-rays, MRIs and CT scans to aid doctors in detecting diseases and conditions.

Autonomous vehicles such as warehouse robots and self driving cars use AI for decision making, navigation and adapting to different driving conditions.

Banks and insurance companies use AI to detect unusual patterns in transactions and in the case of insurance, analyse claim conversations to determine perceived honesty and so on.

AI language translation uses machine learning to interpret and translate text and speech between different languages.

Retailers use AI to analyse customer data and behaviour, enabling personalised shopping experiences, targeted advertising and dynamic pricing strategies.

The list goes on and on and there is no doubt whatsoever that the use of AI is increasing and will continue to increase. The word exponential is not misused when describing the progress of AI in the forthcoming months, years and decades. The internet has developed fantastically along with smart phones over the last thirty years, but progress may not have seemed to be exponential, but in each year the rate of develpoment, size, speed has not been linear.

In simple terms the word exponential could be explained as - faster and faster! Here is another useful definition:

It signifies growth at an increasing rate, where a quantity or value continuously multiplies by itself over successive intervals of time.

The difference between using a search engine such as Google and an AI driven system, is that a search engine is a highly organised information retrieval system, which produces information based on words or phrases inputted into the search bar. For many years pieces of software called 'robots' have been trawling the internet in its entirety, including all websites, looking for keywords and in particular those of commercial value. But this is not AI, although the very same will now be being utilised for that particular purpose.

An AI system such as a chatbot gathers information from the internet, but its modus operandi is to gather huge amounts of data to 'train' itself or rather its large language models (LLM) to learn how to construct sentences which are extremely realistic. These LLMs are designed to be able to process words and phrases received in serial form and they generate 'tokens' for individual words and phrases on such a large scale that they can for example, learn the English (or any other) language! Incidentally and I would say interestingly, this reminds me of how children learn to speak, from a very early age, in the same way, by making sense of what they hear, repeatedly and putting together phrases and sentences. Then fine tuning by experience - rather like 'tokenising' the information they are accumulating?

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