SUPER CHALLENGE FROM ARTIFICIAL INTELLIGENCE AND THE COMPLEXITY OF DEALING WITH DATA

Pidchosa Oleksandr
PhD in Economics, Associate Professor
One Belt One Road Research Institute,
Hong Kong Chu Hai College & Institute of International Relations,
Taras Shevchenko National University of Kyiv

The modern concept of artificial intelligence, as a scientific field, began to develop actively in the late 1950s with the advent of sufficiently powerful computers. Like the computers themselves, the first supercomputers and complex software with the features of artificial intelligence appeared in the military sector with the development of nuclear programmes. Later, their use expanded significantly, but was still largely limited to defense research and use.

The main tasks of artificial intelligence include analysis and problem solving; the possibility of self-learning; the ability to perceive and reproduce human speech, to move and plan movement parameters, etc. All these are carried out on the basis of data collection and processing. The more data are available, the higher the accuracy / correctness of tasks will be.

As we can see from the above range of tasks, the artificial intelligence can be used in almost any area of the economy and everyday life. It is used in robotic vacuum cleaners which remember the layout of rooms, identify obstacles, living and non-living objects with technical vision, increasing the efficiency of cleaning and battery usage. AI is applied for writing scripts for films and TV shows, when it can write a script that meets the needs of a particular social group or several groups after analyzing data from social networks; to high-frequency trading, when the analysis of market changes and execution of a large number of orders takes place in a fraction of a second, which increases the turnover of resources and the profit of an investment company without human intervention. Not to mention the military application, which is a priority area for the use of AI, like it was 60 years ago [2; 4].

As one can see from the examples listed, AI solves many types of tasks much better than a human, but still its use was quite limited and was not available to any user before OpenAI allowed access to ChatGPT. This event literally stirred up the whole world and launched a discussion between supporters and opponents of the development and massive use of AI.

Many purely economic aspects are widely discussed: competition between developers, new business models, features of advertising using AI,

etc. The ethical issues associated with the massive use of AI, for example, taboo topics, extremism and terrorism, medical diagnoses, passing exams at universities, etc. are also very important. But the most fundamental question for us is how information processing will change and what consequences this may have in the future.

The active development of the Internet and search services in the 2000s, the rise of social networks in the 2010s, and mass distribution of smart phones have accelerated the transition to a fragmented perception of reality by many people, without understanding the existing relationships.

In a certain sense, a feeling has formed that it is almost always possible to obtain any necessary information without spending much time and resources, for example, one does not have to go to the library to read a rare book or there is no need to be able to use encyclopedias, etc.

News is actively spread through social media networks. And very often, individual episodes or news are taken out of context and used for manipulation, or even artificially created, like fake news, to form a person's ideas, reactions, and emotional response that the ordering customer needs. Accordingly, it is difficult for a person without a holistic perception of reality to distinguish the truth from lies and manipulation.

It cannot be denied that this was the case before, but mass secondary education in the 20th century actually 'stitched' together disparate elements of knowledge and gave a person a relatively complete picture of the world and processes around, and also taught how to learn.

Since the beginning of the 2000s, in most developed and developing countries, mass education has been simplified, and the learning process has shifted to obtaining simple knowledge – memorizing individual fragments (pieces of information), often without comprehending and linking them into a holistic knowledge. Checking such knowledge among students is carried out using testing, which does not give an answer about the depth of knowledge. Add to this the simplified access to information via the Internet, mentioned above, and we get an individual who processes the information mechanistically – it is quickly found, used and forgotten.

In such a model, artificial intelligence, which has access to and processes huge amounts of data in seconds, is much more powerful than a person who cannot connect fragmentary knowledge through thinking.

It can be admitted that applications that use elements of artificial intelligence (very advanced algorithms) can show substantial performance that seems overwhelming compared to how the search engines available to us worked in the past. At the same time, using the example of ChatGPT, we see that AI can not only be used as a search engine, but can also very quickly give us information in a structured form and even with certain conclusions and assessments, which can be quite a challenge for many people working independently, so they will be happy to use such services. It seems to be fast,

convenient and free (at least for now). But what risks and problems could arise during the operation of such an information management system?

They say that 'data is the new oil of the digital economy' [1; 3] and we can agree with it with some reservations. For example, it is not enough to have data, one must be able to work with it. Thus, if the data is a value, it can be converted into money. Therefore, what was in the public domain at the dawn of the Internet – copies of books, musical recordings, software, statistics, articles, etc. – are now increasingly withdrawn from free access. Will AI find a way to restricted access data (e.g. various subscriptions models) for more accurate processing, and will we have to pay for it? This still remains an open question.

It should be noted that geopolitical competition and its manifestations lead to the fragmentation of the global Internet and the formation of separate zones highly protected from penetration, with even greater restrictions on access to data, which also reduces efficiency and affects the results of AI operation, and hence the conclusions and assessments which it does. Various languages and correctness of technical translation and further comparison of various data by artificial intelligence also limit AI to some extent.

Also, relevant information can be blurred by falsified data in order to achieve the goal of misleading the recipient, the essence is distorted, concepts are substituted (for example, unreliable statistics, etc.). At first glance, it seems the data is relevant, while it is difficult to determine is it free from deception. And such data can be manipulated by AI, further increasing the distortion of the final result.

In order to evaluate the results (a selection of data, text, etc.) that the algorithm has prepared, a person working with information should be highly educated and immediately understand what quality these conclusions are, evaluate their reliability and relevance. Especially if something depends on the use of this information.

Thus, the process of working with information is not simplified with the opening of mass access to AI services, but rather becomes more complicated. In this regard, learning and thinking should reach a new level in order to first of all be able to evaluate the work of algorithms, and also to be in demand in a world where a lot of tasks can be optimized with the help of AI, and the question of human competitiveness in relation to AI will be very sharp.

Obviously, a human cannot remember everything and how AI can quickly process huge amounts of data, so he needs to be able to isolate the most valuable from the information flow – this is a very complicated, but solvable task with the appropriate methodological apparatus. After that, we need to be able to tie together the important elements into the big picture. Experience and personal attitude to the subject, on the one hand, can affect objectivity, but on the other hand, very often they are an important element of an

individual's creativity (scientific, artistic, engineering, etc.), as well as a certain filter in the decision-making process.

The mechanistic approach of the algorithm might be more objective in the presence of full reliable data and take into account a large number of options, but will not be able to give a psycho-emotional assessment (understand feelings and experiences) or evaluate the subtext (layers of text) – this is where limitation of a straightforward approach to working with information appears. The algorithm will probably not be able to evaluate contexts and take them into account in big data processing for a long time.

There is also a big difference between human thinking and compilation based on enumeration and selection of the right answers that match the search conditions, by an algorithm. In this context, the problem of energy costs arises. The workings of the human mind spends much less energy than supercomputers, which, in the conditions of an energy crisis, will also likely be a limiting factor in the mass introduction of artificial intelligence systems. Perhaps this problem will be solved with the further development of quantum technologies.

At the same time we one should admit, that automation of tasks using AI can work quite effectively, but transferring the function of preparing conclusions and making decisions from a person to a software and hardware complex (with the exception of individual cases, for example, performing tasks in deep space, etc.), especially in everyday life, seems dangerous (given the limitations described above).

There are other problems, for example, what if there is no information on the Internet for a search term? How will the algorithm solve this problem, and how will a person already accustomed to using and trusting AI solves it. These questions as well as ethical ones are very important and require further study.

Undoubtedly, the topic of the AI development and its impact on our lives is immense, but today it is obvious that its widespread introduction is not only a super-challenge for the education sector, but also for the future of humanity as a whole.

References:

1. The PyCoach. (July 21, 2022) Is data the new oil of the 21st century or just an overrated asset? Available at: https://towardsdatascience.com/is-data-the-new-oil-of-the-21st-century-or-just-an-overrated-asset-1dbb05b8ccdf.

2. The Emergent. (March 14, 2023) Top 21 applications of Artificial Intelligence in 2023. Available at: https://techemergent.com/applications-of-artificial-intelligence.

3. Sharma R. (March 29, 2023) Is data really the new oil in 2023? Available at: https://www.upgrad.com/blog/why-data-is-the-new-oil.

4. Biswal A. (April 4, 2023) Top 18 artificial intelligence (AI) applications in 2023: Simplilearn. Available at: https://www.simplilearn.com/tutorials/artificial-intelligence-tutorial/artificial-intelligence-applications.