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Commentary Article

Has the "Intelligence" of Artificial Intelligence Entered a Recession?

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Bio

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Holds a PhD in Applied Mathematics to the Humanities from Sorbonne University (2000) and multiple postgraduate qualifications in Language Engineering, Discourse Analysis, Communication Sciences, and Computer Engineering. Served as an Associate Researcher at LaLIC Laboratory, Sorbonne, until 2016.

Authored several books, including *Digital Humanities: Taming Language for Automated Processing* (2014) and *The Cunning of Social Networks and the Secrets of Artificial Intelligence* (2019). Published widely in international journals and Arab newspapers, and participated in numerous conferences.

Research focuses on Digital Humanities, Arabic Natural Language Processing, Computational Linguistics, Machine Translation, Cognitive Sciences, and Text Analysis.

Has the "Intelligence" of Artificial Intelligence Entered a Recession?

Have current generative artificial intelligence applications that rely on large language models (LLMs) reached their limits in terms of creativity and innovation for us to call them

“intelligent”? Or is it possible to develop applications that do not merely replicate and manage the data on which they were trained, as is the case today?

I raised this question several years ago in my book *The Cunningness of Social Networks and the Secrets of Artificial Intelligence* in a chapter titled “No Artificial Intelligence Yet, but...”. I continue to pose the same question because I believe that the language models upon which artificial intelligence rely to construct algorithms have been thoroughly explored. The advancements anticipated in the coming years are likely to involve the expansion of training data across all languages, with the expectation that the results will remain the same to a great extent, with enhanced rhetorical capabilities and the addition of faster image, video, and text generation capabilities, as exemplified by the GPT-4o engine and other competing applications currently entering the market, such as Gemini.

From another perspective, it can be argued that major corporations have trained their applications on all available data from the internet, which has led developers to turn to synthetic data—its effectiveness in enhancing machine intelligence remains uncertain. The progress observed currently appears slow and different after the launch of OpenAI's ChatGPT in late 2022. Consequently, the pertinent question is whether artificial intelligence applications can achieve more than their current capabilities, given that the machine learning and deep learning algorithms employed, which are based on language, remain fundamentally the same.

These algorithms reproduce outputs without a specific logical framework or any connection of ideas through defined relational and causal links, as is the case with humans. When humans think and perform specific tasks, numerous neural connections and interrelated ideas interact within their brains. These neural connections remain undefined and cannot be formally simulated or modeled using a set of algorithms, predominantly based on probabilistic artificial neurons and a scoring system reliant on word frequency to yield specific results. For instance, the score for "spinal" would be significantly higher than that for "human" when used with "cord" because "spinal cord" occurs more frequently than "human cord".

The Current Stagnation of Artificial Intelligence

Everything developed thus far has dazzled the world; however, this does not imply that these machines, as they currently exist, will surpass human intelligence. It is challenging to encapsulate the interconnected ideas in the human brain using linguistic data, images, or videos. No matter how advanced the silicon world becomes, or how improved the NVIDIA and AMD chips utilized in artificial intelligence applications are, it remains difficult to construct the entirety of human context—culturally, linguistically, and ethically—along with other life aspects that cannot be delineated by programmable mathematical symbols. This presents a significant dilemma for artificial intelligence developers.

Consequently, some scientists in the field are gravitating towards a different approach in their quest to achieve general artificial intelligence, which is currently being pursued by numerous well-known institutions worldwide. This view is supported by Yann LeCun, Chief of AI at Meta, who stated in a French media interview that “large language models have a very limited understanding of logic, do not comprehend the physical world, lack a fixed memory, cannot think in the proper sense, and cannot plan hierarchically”.

LeCun remains consistent with his previous beliefs that large language models do not grasp the fundamental reality of the real world because they have been trained solely on text and vast amounts of text. He adds that “most human knowledge is unrelated to language. For this reason, current artificial intelligence systems do not take this aspect of human experience into account”.

However, LeCun believes that human-level artificial intelligence can be achieved by attempting to endow machines with common sense and the capacity for causal reasoning, relying on a computer modeling approach that enables them to contemplate “why things happen”. It is this combination of components that should lead to systems capable of transcending the limitations of large language models. LeCun and his team have given themselves approximately ten years to realize human-level artificial intelligence.

The Hallucination of Language Models

In addition to their limitations, language models suffer from hallucinations and lack of coherence. For example, when I inquired about a particular academic using ChatGPT, the response indicated that “X” was a professor at the Lebanese University, specializing in the field of humanities, among other details. It also erroneously stated that X is a doctor working in Sweden in medical research. The system provided all available information about X regardless of the context, specialty, or other relevant details. Another case of hallucination is when requested to generate a text on a specific topic with bibliographic references, the model often produces fabricated references that do not exist.

Therefore, there is a pressing need to develop specific standard applications capable of distinguishing between linguistic skills and the real world as well as creating and updating knowledge about the real world. No matter the extent of advancement in chips that can integrate billions of digital signals to aid in data storage and processing, this will not yield smarter results than what is currently available. Furthermore, this does not address other issues related to energy consumption, ethics, and other matters that technology creators are expected to acknowledge but have yet to address meaningfully, aside from some superficial “discourse” (which is another topic).

Currently, applications will continue to generate images, voices, and videos across various domains. We will also move towards exploring regulatory frameworks to legalize these applications while safeguarding individual freedoms and intellectual property rights, among other concerns that affect individuals and communities. The competition among technology creators will persist, intensifying the rivalry between the United States and China for data dominance, while European countries strive to catch up with artificial intelligence, competing with the U.S. on one front and with Russia and China on another.

In the Arab world, countries have begun investing in artificial intelligence and its applications, especially in the GCC region. For instance, Saudi Arabia has risen to 14th place globally in 2024, up from 31st in 2023, according to an AI index measuring global adoption and innovation across 83 countries. Arabic language software, such as the chatbot “Alam”, is emerging, which will help enrich Arabic digital content. The current goal should be to build digital content in Arabic to process data produced in the Arab world. This content should address issues relevant to individuals and communities in the Arab region. Additionally, investment in education is essential to equip future developers in creating intelligent applications and guide new generations to engage with future artificial intelligence systems that transcend the limitations of

existing large language models based on repetition. It is also important to help seek innovative and practical solutions.

AI and Translation Creativity

What about machine translation and its applications? The question is not merely about comparing artificial intelligence applications or the errors they produce and their linguistic patterns—morphologically, syntactically, and semantically—as these issues have become relatively common knowledge. Everyone uses these applications, be they novice users, professional translators, or academics and researchers.

The question of creativity in machine translation is where does it excel and where does it fall short?

It is evident that various types of machine translation applications have become an integral part of the broader translation landscape. Over the past two decades, these applications have undergone tremendous development, particularly for languages that are morphologically and syntactically similar, benefiting from a digital content ecosystem that allows for automated data processing in various formats. This progress involves algorithms that attempt to simulate neural brain cells and mechanisms of knowledge acquisition. Furthermore, this development has impacted translation to and from Arabic, despite facing certain linguistic challenges on one hand and encoding and re-encoding issues on the other. This raises the question: Where does machine translation excel, and where does it falter?

If we consider the text as a cohesive unit that constructs meaning through its internal and external contexts, as well as through its paratextual elements, we see that it is not merely an arithmetic aggregation of meanings from its components. Simplifying further, if we define creativity in translation as the re-encoding of a text into specific expressive symbols while preserving the essence and meaning of the original, along with its cultural nuances and linguistic representations, can we then regard machine translation—limited to its artificial memory and algorithms containing only the presumed dictionary meanings of words, devoid of contextual and pragmatic meanings, and lacking cultural expressions—as truly creative?

As we know, there is currently no cultural creativity in machine translation software, as it remains challenging to instill cultural understanding in computers, regardless of the various approaches to application development. Culture is indivisible and dynamic, with each individual attributing meaning to culture based on their linguistic identity. On the other hand, one could argue that the advancements observed in machine translation applications, algorithms, and the transition from declarative programming to dynamic programming, along with the innovation of algorithms in artificial intelligence—such as machine learning and deep learning—can be considered a form of technological creativity.

Moreover, the changes occurring in the fields of technology and translation from a comprehensive perspective must consider the concept of machine translation from both a translational and a technical standpoint. This will help determine where machine translation has succeeded and where it has not, grounded in translation theories and cognitive science theories. If we accept that creativity involves the reformation of concepts and the construction of new ideas using knowledge, we need to develop new concepts in the humanities that relate to the

technological changes in the digital representation of knowledge. This is based on the premise that creativity entails transcending boundaries between knowledge domains, leading to the emergence of the concept of digital humanities, which we define as a form of creativity within the humanities, of which translation is a part.

This necessitates a new educational model that aligns with the digital changes in the teaching and learning mechanisms of translation in Arab institutions and universities, aimed at creating applications developed and validated by translation researchers rather than solely by technology engineers. Ultimately, this approach seeks to address some of the challenges associated with the computational processing of the Arabic language, enriching Arabic digital content, which will in turn enhance translation quality. Creativity also involves leveraging fixed data to construct new information through the application of knowledge.