THE ROLE OF ARTIFICAL INTELLIGENCE IN REDEFINING IN TRANSLATION

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Abstract- This article offers a robust examination of how NMT challenges established translation theories like Dynamic Equivalence. It clearly delineates AI's practical efficiency against its failures in capturing subtle context. The discussion on ethical dilemmas—bias and authorship—is crucial, concluding persuasively that the modern translator must become a skilled post-editor and "language consultant," skillfully partnering with technology.

Key words- Artificial intelligence, machine translation, neural machine translation, dynamic equivalence, post-editing, algorithmic bias, language consultant, interlingual transfer.

Introduction

The relationship of cultures, languages, and ideas has been characterized by translation since antiquity. Meaning, fidelity, and the translator's role as mediator have tended to be the focus of translation theory. However recently, technology has started to change all that, thanks to increasingly advanced Artificial Intelligence (AI) and Neural Machine Translation (NMT) systems, like DeepL, Google Translate and ChatGPT, which are making the translation process faster and more convenient than ever before. AI, despite being able to create fairly accurate translations, is changing our comprehension of what translation might be or do. Rather than replace human translators, AI is changing what translation is in theoretical and practical terms. This article discusses how AI is changing translation theory and the role of the translator, including new ethical and professional concerns.

Main part

As a branch of computational linguistics, machine translation, also referred to as MT, has evolved with the software it uses to translate text or speech from one language to another. Therefore, its development has been in tandem with that of computer technology, information theory, linguistics, etc., across stages, i.e., from dictionary-like machine translation (MT) initially, to corpus-based computer-aided translation (CAT), then to artificial intelligence aided neural machine translation (NMT) (Zong, 2018). Machine Learning (ML) in its present form, could though be traced back to 1990s, its with the wide availability of spoken and written data through organizations such as the Linguistic Data Consortium (LDC), that it got unprecedented momentum in the present century. This began with collections, like, the

Penn Treebank (Marcus et al., 1993), Prague Dependency Treebank (Hajic, 1998), PropBank (Palmer et al., 2005), Penn Discourse Treebank, and TimeBank (Pustejovsky et al., 2003), etc., providing in abundance text resources with different syntactic, semantic, and pragmatic annotations. These resources prompted further investigations into parsing and semantic analysis, such as, word sense disambiguation (Palmer et al. 2001; Kilgarriff and Palmer, 2000), question answering, and summarization, etc. This helped the statistical machine learning community in developing techniques, such as, support vector machines, maximum entropy, multinomial logistic regression (Berger et al. 1996), and graphical Bayesian models, etc., propelling further the machine translation.

With the developments in high-speed computing systems, it became easy to transform the unsupervised statistical methods, with progress made in statistical approaches and topic modeling (Blei et al.2003), into applications which could now be trained on unannotated data alone. This set the ground for machine translation to move on without a reliable annotated corpora.

The latest in machine translation is the use of neural networks which could deal with gargantuan amount of language data with much ease, thereby making Neural Machine Translation (NMT) a rather much accurate one. Therefore, major giants in the field, like, Google, Facebook, Amazon, Baidu, etc., have all adopted NMT on their platforms performing real-time multilingual tasks, such as, simultaneous translation.

This end-to-end Neural Machine Translation (Bahdanau et al.2015; Cho et al. 2014; Sutskever et al. 2014) has thus gained ground quite rapidly across the board. Most of these systems are designed to handle single language pair, but this model could well be extended to multiple language pairs without making any drastic change in the usual NMT architecture. By putting in an additional "artificial token to the input sequence to indicate the target language" (Johnson et al. 2017), while all other constituents, i.e., encoder, decoder, attention, and shared wordpiece vocabulary (Wu et al. 2016), remain as it is. These models through Deep Learning (DL) can now process a vast amount of data at multiple layers facilitating multiple levels of data abstraction (LeCun et al. 2015).
AI thus forces a re-evaluation of translation theory itself. Concepts like fidelity, equivalence, and purpose — long central to translation studies — must now be reconsidered in light of technological agency and machine mediation. Since these theories are based in human understanding and cultural awareness, and since AI systems lack both emotions and intentions and even a sense of contextual meaning, the question arises as to whether these records, based on algorithms trained on huge corpora, are really translating or just mechanically replacing words using algorithms. For this reason, translation theory, with its focus on creativity and human interpretation, will need to be re-evaluated in the light of artificial intelligence.

AI and NMT have made translation even easier and faster. NMT uses deep learning to train on millions of examples to produce fluent translations in seconds. For basic or technical language, AI can save large time and effort. It can be used by companies and

organizations to produce fast multilingual communications. However, these tools also have major limitations. AI systems struggle with cultural context, idioms, humor, irony, and emotion. For instance, metaphors or jokes are often rendered literally, losing their original nuance or impact. The absence of emotional intelligence and cultural awareness means that AI can reproduce language patterns but not the human intention behind them. AI translations usually fail to recognize or replicate cultural context, humor, and emotion. Idioms and metaphors are translated verbatim with little to no attempt to replicate the meaning of the original text. As such post-editing of the text translated by the machine by professional translators is still necessary and artificial intelligence is changing the translation profession. Translators play the part of a quality control editor, fixing mistranslations or phrasing that is not quite right for the culture.

The advantage of AI-assisted translation comes with its ethical challenges. There are also questions about authorship, e.g. who is responsible for a translation done by an AI? In addition, AI tools trained on internet data can produce sexist and racist outcomes, as well as political bias. For example, AI tools that use pronouns often use masculine pronouns (Youdale, 2021).

There are also privacy concerns and data leaks for AI tools that can be used for translation of sensitive or confidential information, such as legal texts and medical documents. Also, most AI translation tools learn from a small number of languages. This may keep smaller languages out of AI-based translations.These challenges have shown that translators need to be more than just capable language users in addition to ethical digital professionals. The translator's role is changing. Many translators do not see AI as a competitor, but essentially as a helping hand. Translators can use AI to do the repetitive elements of translation work, while they take on the creative and cultural tasks. AI currently does not do that well. In this sense translators are now becoming "language consultants", rather than being directly replaced by machines. Humans have advantages over neural machine translation due to their empathy, cultural knowledge, creativity, and ability to recognize the tone, humor, or irony of a message, despite being less precise linguistically. So, translation education today is supposed to offer students a theoretical knowledge, plus some training on the use of tools and on post-editing, so that they can learn to work with technology. Translation programs are now adjusting to train students for such a hybrid professional reality, offering theoretical translation studies (Nida, Vermeer, etc.), but also hands-on training with computer-assisted translation (CAT) tools, post-editing of machine translation (MT) output, and literacy about artificial intelligence in general. Modules related to data ethics, AI bias and cybersecurity are increasingly common in the translation field, an effort to help students prepare for the ethical challenges of machine-assisted work. Teachers still stress creativity, empathy and interculturality though, which are key points that make the role of human translators cultural, in addition to technical.
Its aim is to educate digitally able cultural mediators, effective and responsible users of the new technologies and tools, who never abandon the human dimension of translation.

Beyond the practical implications, AI raises deep philosophical questions about the nature of translation itself, which has historically been viewed as a human communicative act based on intention, interpretation, and empathy. To AI, translation only consists of computing the target text, not of understanding the meaning itself. It enables a posthumanist view of technology where translation is not only a human activity, but also one that includes machines. In this understanding, machines are considered part of the network through which translation happens, and contribute to meaning making across languages and cultures. In moving from the creating of substantive translations to their algorithmic creation and statistical inference, some theorists view machine translation as a radical turn from a humanist, communicative view of translation to a view theorizing agency and action as entangled with technology. Thus, translation studies today need to reconsider the questions of authenticity, authorship, and creativity in an era in which machines have taken on the role of making meaning.

Conclusion

AI translation will continue its development, including real-time speech translation and multimodal translation that can translate text, audio, and images at once into it, thereby changing global communication. Such software enables rapid interlinguistic communication, but it may lose some cultural and emotional subtlety during the process. On the other hand, low-resource language translation and multilingual models may help address this gap, though the quality of the resulting translation in terms of smaller languages' culture would remain unknown. The future of translation is likely to be a partnership between people and machines, the former offering empathy, ethics and culture, the latter speed, memory and scale. To ease this partnership between humans and machines in a way that is effective and principled, there is a need for ethical norms and professional standards for the use and crediting of AI translation. Gradually, those translators may grow into what has been called cultural technologists, specialists in transferring the meaning of communicative acts across human and machine boundaries.

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