# What experts say about increasingly relevant translation technologies

Pilar Sánchez-Gijón

Pilar Sánchez-Gijón
Universitat Autònoma de Barcelona;
pilar.sanchez.gijon@uab.cat;
ORCID: 0000-0001-5919-4629

#tradumatica20_Q8

Which areas within translation technologies do you think will become increasingly relevant in the short or medium term? What is going to occupy researchers, teachers or translation professionals the most in the near future?

Quins àmbits dins de les tecnologies de la traducció creus que prendrà més protagonismes a curt o mig termini? Què ens ocuparà més a investigadors, docents o professionals de la traducció?

¿Qué ámbitos dentro de las tecnologías de la traducción crees que tomarán más protagonismo a corto o medio plazo? ¿Qué nos va a ocupar más a investigadores, docentes o profesionales de la traducción?

EN / CA / ES

Abstract

When the community of translation researchers, trainers and practitioners is asked what they consider to be most relevant as regards translation technology research in the near future, the unanimous answer is neural machine translation (NMT). The application of AI to the language industries, and to the translation industry in particular, requires a reconfiguration of both the technologies themselves and the way in which they are being employed. In addition, developments in different natural language processing technologies bring new research questions to the field of Translation Studies. This article presents the answers provided by translation experts with different backgrounds and collects the main research questions on translation technologies or emerging from such technology development.

Keywords: translation technologies, translation technology research, ethics, translation profiles, translation training, literacy.

Resum

Quan preguntem a la comunitat d'investigadors, formadors i professionals de la traducció què consideren més rellevant quant a la recerca en tecnologies de la traducció en un futur proper, la resposta unànime és la traducció automàtica neuronal (TAN). L'aplicació de la IA a les indústries de la llengua, i a la de la traducció en particular, requereix una adaptació tant de les pròpies tecnologies com de la manera en què s'utilitzen. A més, els avenços en les diverses tecnologies de processament del llenguatge natural plantegen noves qüestions de recerca en el camp dels estudis de traducció. Aquest article presenta les respostes aportades per experts en traducció amb diverses trajectòries i recull les principals qüestions de recerca sobre tecnologies de la traducció o que deriven de l'esmentat desenvolupament tecnològic.

Paraules clau: tecnologies de la traducció, recerca en tecnologies de la traducció, ètica, perfils de traducció, formació en traducció, literacitat.

Resumen

Cuando se pregunta a la comunidad de investigadores, formadores y profesionales de la traducción qué es lo que consideran más relevante en cuanto a investigación en tecnologías de la traducción en un futuro próximo, la respuesta unánime es la traducción automática neuronal (TAN). La aplicación de la IA a las industrias de la lengua, y a la de la traducción en particular, requiere una adaptación tanto de las propias tecnologías como de la forma en que se emplean. Además, los avances en las distintas tecnologías de procesamiento del lenguaje natural plantean nuevas cuestiones de investigación en el campo de los estudios de traducción. Este artículo presenta las respuestas aportadas por expertos en traducción con distintas trayectorias y recoge las principales cuestiones de investigación sobre tecnologías de la traducción o que se derivan de dicho desarrollo tecnológico.

Palabras clave: tecnologías de la traducción, investigación en tecnologías de la traducción, ética, perfiles de traducción, formación en traducción, literacidad.

Introduction

On the occasion of the celebration of the 20th issue of *Revista Tradumàtica*, we launched the following questions to the academic community in the field of translation technologies: Which areas within translation technologies do you think will become increasingly relevant in the short or medium term? What is going to occupy researchers, teachers or translation professionals the most in the near future? The answers we have obtained give us a glimpse of what concerns researchers, trainers and practitioners about the future of translation technology research. All the opinions submitted have been arranged in three different sections, which serve as the framework for this article. The first section is devoted to research and technologies, with an emphasis on the technological changes to come. Next, a section devoted to the research within translation studies triggered by technologies. Third, the answers gathered concerning research in translation training and in professional profiles prompted by translation technologies. The article concludes with some final remarks on the topic.

Research and technologies

Juan José Arevalillo began his contribution by pointing out the changes taking place so quickly in the field of language technologies. This statement is in line with Fantinouli (2022), who notes that technological changes in the field of natural language processing

(NLP) are currently taking place exponentially, so much so that the people called upon to apply them are unable to understand their scope.

In almost all contributions, neural machine translation (NMT) has been mentioned as the determining factor in establishing the future objects of research. Sandrini and Pablo Muñoz Sánchez put it very clearly: MT will occupy researchers in the near future. Muñoz Sánchez even specifies that it will be MT, together with Post-editing (PE), which will soon attract the most interest, and I dare say that it is already doing so.

Francisco Casacuberta believes that research will continue to evolve around the development of neural models trained on large volumes of data, which will help to lead to more natural language models, as Maria do Campo points out. Following this line, Almudena Ballester points to the customisation of NMT as the next scenario. According to her, this customisation can go hand in hand with improved translation by context, as well as the identification of terminology to provide it with a more specific approach.

In fact, several answers to this question have pointed to AI and deep learning research applied to the translation industry, and to the language industry in general, as a trigger for research. Do Campo also mentions multimodal translation research as the next breakthrough. Multimodal MT can be understood as translation between languages starting from data with different morphologies (mainly text and images), as described in Dutta Chowdhury *et al.* (2018). But it can also be understood as the translation between different information morphologies, e.g., from text to image or vice versa.

Another possible determinant of technology research, according to Vicent Briva, is the user, be it a professional or a non-professional user. Briva highlights what is known as "engage research": the involvement of members of a language community in monitoring automatic actions, such as tagging, and its effect on deep learning research.

All these recent technological innovations could have a consequence that is not often reported, which according to Rudy Loock , is the possibility that translation memories as the basis for computer-assisted translation will disappear, or at least no longer be as we have known them up to now. All signs suggest that this may become an unavoidable consequence of NMT dominance. While CAT functions such as translation editing may remain highly relevant, other essential functionalities such as the translation memory database may fall into obsolescence under the widespread preponderance of NMT.

Another consequence of current research in translation technologies is the split between languages that are extensively documented and those that are not. We are not only referring to the availability of data, which is already a problem, but also to the accuracy of the processing of texts produced in different languages. Mihwa Jo, for example, points out the problems that many translation software programs have in segmenting Korean texts. It seems that technologies focus on getting the right processing of particular languages, while others remain an ongoing challenge.

Technology-driven translation research

Some responses highlighted technology-driven changes in translation practice as an emerging area for further research. The first major research question that arises concerns the purpose of using technologies, which concerns how to evaluate the scenarios in which to use MT. Muñoz Sánchez points out the importance of using MT only in suitable contexts, and to avoid employing it exclusively as an overall way to reduce costs. Following on with research questions on translation practice and technologies, Xènia Amorós discusses the need to question to whom the means of production based on translators' efforts belong. This is one of the possible questions with ethical roots that can be posed by research in technology-driven translation studies.

Ethics in the professional practice of translation with technologies is one of the areas most frequently highlighted by participants. Estel·la Oncins suggests studying the use of translation technologies from an ethical perspective. In the same vein, Lynne Bowker supports research on the responsible use of translation technologies. Bowker goes further, indicating that this responsible use involves both practitioners and trainers and clients. This is consistent with the line of research pursued by authors such as Moorkens (2022).

At the same time, the technological development of digital multimedia publishing has also brought to light new communicative needs that translation studies have embraced. Estel·la Oncins stresses the relevance of carrying out research in the field of human-computer interaction (HCI) accessibility, because she considers that technologies should contribute to reducing social disparities. HCI is also mentioned by Felix do Carmo regarding PE, which is dealt with in the second part of next section.

Translation technologies, translation training and professional profiles

All participants, directly or indirectly, note their concern about the implications of technologies on the professional profiles of current and future translators and, consequently, on translator training. Again, the main trigger for these concerns is NMT, and AI applied to NLP in general.

Peter Sandrini is betting on two possible future profiles: the translation professional with a culture specific focus, and the translation technology advisor who will cover the needs of any communication service. What Sandrini is implicitly pointing out is that NMT is unable to deal properly with translation problems of a cultural nature. Indeed, this seems to be true nowadays. In fact, it is the factor why, according to Muñoz Sánchez, MT is not the best solution in certain translation scenarios.

These two profiles defined by Sandrini make it possible to categorise the answers received concerning translators' professional profiles and training. If we focus on the second profile, which we will call "translation technology advisor", we run into comments such as that made by Juan José Arevalillo, who points out that some clients are already looking for "linguists" rather than translators to ensure the quality of the end product, whatever the label "linguist" may refer to. In fact, Arevalillo advocates incorporating new subjects into the translator's training that will allow these "linguist" skills to be further

developed. In particular, he mentions programming languages, such as Python, as a subject with which Translation and Interpreting graduates should be familiar.

In fact, Xènia Amoròs puts her finger on the problem: the main consequence of the irruption of NMT in translator training is that NMT automates obtaining results that were previously the outcome of cognitive processes. In other words, non-thinking machines achieve results akin to those that would be obtained through cognitive processes, which is probably something that technology has been trying to achieve for centuries in all fields of knowledge. For example, for many years now, calculators have been able to solve mathematical operations in milliseconds, which for a human being require a great deal of cognitive effort combined with sound calculation skills. The difference lies in the fact that a mathematical operation can only lead to one single result, whereas univocity rarely happens in translation. The translation of a text is involved in a whole series of intratextual and extratextual conditioning factors that make it possible to establish which translations are adequate and which are not. Given a particular source text, there can be an infinite number of appropriate translations, as well as an equally infinite number of mistranslations. Translators, working from their knowledge of all those intratextual and extratextual constraints, are able to determine which translations are appropriate, and even which translation is optimal, whereas non-thinking machines are able to calculate which translation option is most likely to be suitable. The problem that Amorós points out occurs when the calculation of the non-thinking machine has a very high probability of matching the translation produced by the human cognitive process, or even of bettering it. How to assess the appropriateness of a translation, at least nowadays, remains a problem that can only be solved cognitively.

This brings us to an issue that Rudy Loock includes in his contribution: how MT is used by translation and interpreting trainees. The issue of MT literacy is also a subject that could be integrated into translation and interpreting training. Taking up the two profiles outlined by Sandrini above, there is no doubt that literacy skills are essential for the profile we have called "translation technology advisor". But do those professional translators with a culture-specific focus also need to be trained in MT literacy? This is what can be inferred from works such as Bowker and Buitrago Ciro (2019). And this is precisely what Rudy Loock insists on at the end of his contribution: more research in training is needed.

On the basis of all these considerations, the different participants explored the range of professional modalities and profiles that have emerged with translation technologies and with other applications of the digital world. Oscar Nogueras describes how the demand for technology in translation modalities related to digital marketing is increasing. Almudena Ballester agrees with this observation and mentions SEO translation as a type of translation to which technological advances can further contribute. Oncins and Ballester also point out how these changes will also affect already consolidated specialised profiles, such as audiovisual translators and interpreters. And Olga Torres-Hostench foresees that translation will eventually become an audiovisual task, in a world where information increasingly relies on images rather than text.

Rudy Loock wonders whether PE can still be considered a separate professional modality from revision. On the other hand, Felix do Carmo conceives of PE as the interaction of the translator with the machine to achieve a final translation, so he equates the task of PE with translating, not revising. This issue is likely to cause deluge of letters (or of ones and zeros) among translation trainers and researchers in near future.

Final remarks

All the opinions collected in this article, including the author, suggest that we are still at the beginning of a new era for translation. One thing is certain: the translation sector is undergoing a technological revolution, but there are few other certainties on which all opinions agree.

The division of the professional sector into two professional profiles suggested by Sandrini, that of translators with a culture-specific focus and that of translation technology advisors, seems to be in line with the sign of the times. So is the need to train translators in a certain digital literacy. The question is to determine what the literacy of each of these profiles consists of. Not to mention that exponential changes in technology are constantly reshaping the landscape.

There is one other conclusion on which we can all agree: the need for technologies to contribute to a fairer and more egalitarian world, both globally and within the translation sector in particular. The ethical development and application of technologies, and in fairness to users, professionals and languages, seems to be a basic principle on which the whole community agrees. We can foresee where the application of AI to language is taking us, but we cannot yet conceive of its future powers and limitations.

Today we know that AI can be creative (Bakpayev *et al.*, 2020), and it can also "hallucinate" (in the sense of Guerreiro *et al.,* 2022), even though it does not think. What other functions originally restricted to humans will it be able to do? What other new areas of HCI research will emerge? And in the meantime, how can researchers, trainers and practitioners alike adapt to the new reality? There is no doubt that the acquisition of skills in some digital literacy is necessary at all levels. But even literacy research is conditioned by the widening gap between the profile of standard users of technologies and the most advanced technological developments. It is also a challenge for research in this field to keep pace with technological developments, whose evolution, in the eyes of a technology regular user, is almost meteoric.

References

Bakpayev, Marat; Baek, Tae Hyun; van Esch, Patrick.; Yoon, Sukki (2020). Programmatic creative: AI can think but it cannot feel. *Australasian Marketing Journal,* v. 30, n. 1, pp. 90-95. <https://doi.org/10.1016/j.ausmj.2020.04.002>. [Accessed: 20221201].

Bowker, Lynne; Buitrago Ciro, Jairo (2019). *Machine translation and global research: Towards improved machine translation literacy in the scholarly community*. Bingley, UK: Emerald Publishing, 2019.

Dutta Chowdhury, Koel; Hasanuzzaman, Mohammed; Liu, Qun. (2018). Multimodal Neural Machine Translation for Low-resource Language Pairs using Synthetic Data. In: *Proceedings of the Workshop on Deep Learning Approaches for Low-Resource NLP*. Melbourne: Association for Computational Linguistics, pp. 33-42. <https://doi.org/10.18653/v1/W18-3405>. [Accessed 20221201].

Fantinuoli, Claudio (2022). Embracing complexity: challenges for translator and interpreter education in a technology-driven world. In: *APTIS 2022: Translation and interpreting pedagogy in a post-pandemic world: new opportunities and challenges, Association of Programmes in Translation and Interpreting Studies*, UK and Ireland *Conference, Leeds, 18-19 November 2022.* <https://www.aptis-translation-interpreting.org/aptis-2022>. [Accessed 20221201].

Guerreiro, Nuno M.; Voita, Elena; Martins, André F. T. (2022). *Looking for a needle in a haystack: A comprehensive study of hallucinations in neural machine translation*. Cornell University. <https://doi.org/10.48550/arXiv.2208.05309>. [Accessed 20221201].

Moorkens, Joss (2022). Ethics and machine translation. In: Kenny, Dorothy (ed.). *Machine translation for everyone: Empowering users in the age of artificial intelligence*. Berlin: Language Science Press. (Translation and Multilingual Natural Language Processing; 18), pp. 121-140. <https://doi.org/10.5281/zenodo.6653406>. [Accessed: 20221201].