SPECIAL FEATURE: AI AND LITERARY TRANSLATION

The ambivalence of machine translation and AI

Resource or replacement?

Damien Hansen

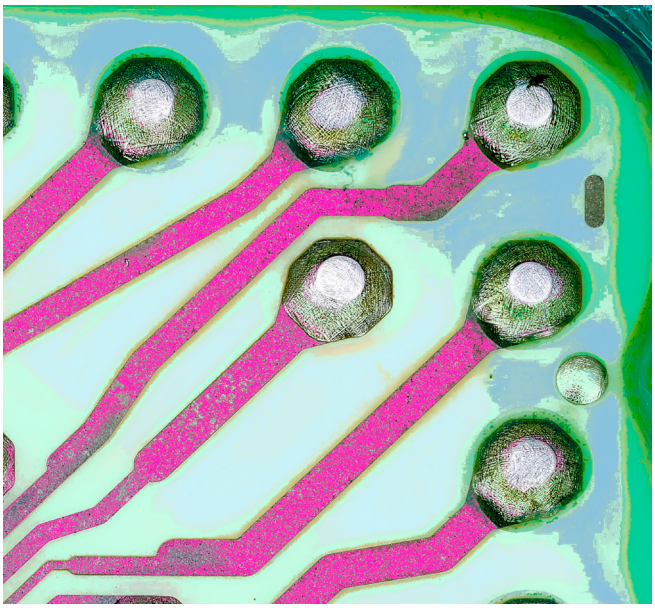
While research on literary machine translation (MT) has gradually brought up the issue, the arrival of large language models (LLMs) and related chatbots seems to have given new momentum to the topic of translation technologies in the literary domain. This could have something to do with publishers now facing the consequences of their arrival directly, with the recent wave of AI-generated scam submissions. Nevertheless, there are now more transparent talks on technology and practices that already existed even if they perhaps did not apply to serious editors and established translators.

A numbers game

Although neural MT systems have reached sufficient quality to be used daily in many tasks and to fuel all sorts of claims about their performance, it is always good to remember that this is still all about numbers: the ones used by machines to represent words and sentences, those that neural networks are made of, but also the amount of data that is used to train such systems, and the number of their parameters that is said to be directly proportional to improved quality. By adopting such a mathematical perspective, we can paint a more nuanced picture of the technology and its capabilities. This can include the fact that existing systems are hardly adapted to the literary domain but could be tailored to literary texts or even an individual translator style, as well as the limitations that even such tools would be subject to.

Although this 'data-driven' approach does work very well in practice, MT engines still handle isolated sentences and cannot have an overall view of a translation. They cannot be expected to understand the text, deal with cultural elements, play with formal constraints

or create accurate neologisms. Nor do they have the sensibility to change the focus or structure of the narrative and adapt to the desiderata of all the actors involved, all of which require critical human thinking. Unless a new paradigm changes the way MT works, it will continue to sometimes struggle with lexical disambiguation and will always stay close to the source. That doesn't mean, however, that it has no future in the literary domain. I know many people use it already (not for post-editing per se, but to jumpstart the translation process when the mind strays, get some ideas, etc.). Furthermore, I have suggested a shift of paradigm in my research whereby professionals could train their own MT system, which would act as one of many other tools in the larger picture of computer-assisted translation.



By Kaisa Ranta, based on a photo by Mister_fr *CC-SA*

Money versus quality

The problem is not so much the tool itself, but rather it being imposed upon professionals and its use for purely economic reasons. Indeed, the traditional use of MT as a first draft can constrain literary translators, their creativity and their voice, as research – and *Counterpoint's* Issue No 4 on this topic – suggests. MT should instead be implemented in a way that does not lead to priming and integrated in an interface that does not prevent the heavy restructuring that is often required, so as not to disrupt the flow of translation and the delicate balance between faithfulness to the source and originality of the target. Failure to do so would have a direct impact on quality and style. Not only translator style, but also conventions of the genre. For instance, I work on fiction, which I found to be particularly complex for machines as it involves a characteristic lexicon, frequent wordplay, neologisms and variations in tone that machines are not able to reproduce. Nevertheless, the apparent quality of MT and potential monetary gains are such that it is bound to become increasingly commonplace.

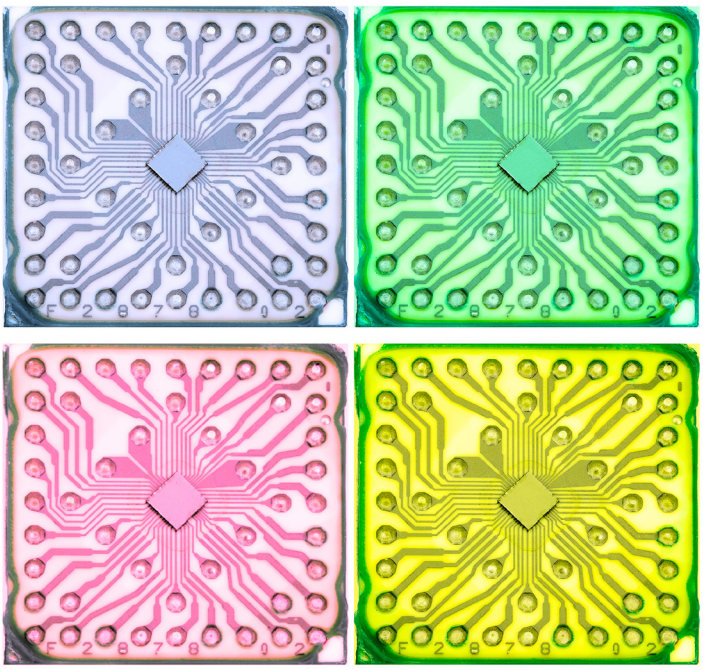
Bigger systems, bigger scope, bigger concerns

The arrival of LLMs is somewhat interesting in the sense that it now extends the discussion that translators were already having concerning machine translation to a much larger public. Essentially, they rely on the same technology as MT tools, but on an exponentially larger scale. While MT is trained with task-specific parallel corpora, the ability of LLMs to handle multiple tasks and languages has to do with the amount of training data being so unimaginably vast that it is bound to contain examples of languages other

than English, examples of code, etc. They do exhibit unintended capabilities, however, bringing about new uses and new concerns. As far as translation is concerned, I would argue that the jury is still out. On the one hand, LLMs have the ability to work at paragraph level rather than the sentence level of MT. On the other hand, in my experience, they produce calques and basic errors not found in MT. However, there might be some interesting uses in their capacity to rephrase or output something in a different style, for instance, in keeping with the idea of using tools to compare solutions and provide translators with varying alternatives.

> *"We ideally need to rethink technology and its implementation"*

Given that both MT and LLMs make use of neural networks, they exhibit the same limitations. One of the differences with previous paradigms that is notably overlooked but has come to light with the latest generation of chatbots is that these neural-based applications produce seemingly fluent outputs, but are prone to hallucinating, omitting information or distorting meaning. And these mistakes are much harder to spot, especially to the untrained eye. Due to their increased need in training data and wider range of applications, however, LLMs also raise larger ethical issues that are not limited to the language industry.



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Ergonomics, data & fair pay

I have already touched upon the design constraints related to the integration of MT, but both technologies pose a risk first and foremost to the status and remuneration of translators, as there is a general lack of accountability and regulation around their use. This is especially true for large language models, whose development, as mentioned, requires much, much more data. Indeed, these vast quantities of data automatically scraped from the Web are bound to include protected content which is freely available online. Far more disconcertingly, entire repositories of copyrighted books are actively collected to create massive datasets which are crucial to the fluent, creative and well-turned output that makes them so successful. I would not be surprised, therefore, if literary-adapted MT engines were to arrive in the near future.

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Damien Hansen
Photo: Private archive

In this rapidly evolving context, translators will have to make a case to ensure that MT be implemented – should this happen – in a way that is transparent and voluntary, that does not infringe on their rights, and that aims to support rather than hinder the creative process. Moreover, they should receive fair compensation if their work is used to train new systems. Associations and unions will have an important role to play in that matter, as well as authors who are also at risk.

One such solution would be to revise contracts so as to prevent further use outside the scope of the publication, as the voice acting industry is suggesting, even though the distribution of e-books makes this difficult. We ideally need to rethink technology and its implementation in a way that aims to support rather than replace. This is best done by focusing on the dialogue between human and machine, on less invasive integrations for MT, on the ability to summon the system on demand, on providing multiple solutions for a segment instead of a single pass on the entire text, etc. If anything, this entire discussion does serve to highlight the added value of human translation, whether literary or not, and should aim to ensure that machines work for humans instead of humans working for machines.

AI is an umbrella term for many approaches dating back to the mid-20th century. The underlying aim of this research field is to create a machine that could artificially solve a broad range of tasks commonly associated with human intelligence.

Chatbots are one way to interact with large language models. We know them best as virtual assistants on websites answering requests based on pre-coded rules, but the text-generation capabilities of LLMs makes them especially suited for this use as conversational agents. ChatGPT is illustrative of the latest LLM-powered generation of chatbots in its aim to become an integrated assistant and in its ability to handle a broad range of tasks, including some unanticipated by its developers, due to the massive quantities of data involved.

Deep learning is a branch of machine learning, which itself is a branch of AI. Where machine learning aims to resolve specific tasks by learning from data, deep learning revolves around the use of neural networks to process this data and perform the task. Its name actually comes from the number of layers in the network (deeper meaning more layers and more complex tasks), but the term AI is often used synecdochically today as a substitute for deep learning and associated tools, thereby reinforcing the hype.

Large language models (LLMs) are another product of deep learning, mainly trained on monolingual text data and focused on word prediction. Similarly to machine translation, which also involves language modelling, LLMs make use of neural networks, but on a much larger scale. Where we typically talk about millions of words to train MT systems made of a comparable number of parameters (roughly equating to how big and how deep the model is), LLMs are now estimated in billions of parameters and their training data in trillions of words.

Machine translation (MT) is, before all else, a tool. Multiple approaches have been used to build such systems (rule-based, statistical, neural), with the latest generation of tools now leveraging the advances of deep learning. Although these neural systems are commonly presented as a radical shift of paradigm, the idea remains very similar to the preceding statistical approach in its use of probabilistic methods and large parallel corpora for training. These data-driven approaches, on the other hand, mark a definitive change in comparison with the carefully hand-crafted rules of first-generation systems.