

ARTIFICIAL INTELLIGENCE, MACHINE TRANSLATION & CYBORG TRANSLATORS: A CLASH OF UTOPIAN AND DYSTOPIAN VISIONS

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ABSTRACT: The link between artificial intelligence (AI) and translation, as well as the repercussions of this complex relationship have enjoyed increased attention in today's post-human translation studies. This paper problematizes how AI, with a special focus on machine translation (MT) and its current trends in the wake of the technological turn, has transformed the concept of translation, and has ultimately resulted in the emergence of new translator roles and competences. We aim to cast a fresh conceptual light on how and why AI continues to challenge the translation industry, imply what benefits and threats it may bring for language professionals and offer a theoretical model of the new roles of the human translator. We claim that the translator's positioning on the cline between a utopian and dystopian future is a function of factors influencing their changing roles. From a utopian perspective, we view technology as an aid to the human translator where the translator's toolkit of competences is augmented by CAT tools, neural machine translation (NMT), post-editing and revision skills as well as experiential learning. In the dystopian interpretation of the translator's job, AI completely takes over the role of translators and phases them out on the grounds of speed, precision and cost. Despite inspiring some outlandish visions, the article emphasizes the idea that although AI has been radically transforming the translation industry of the 2020s, it is still difficult to predict to what extent it is going to ultimately redeem or destroy translators.

KEYWORDS: artificial intelligence (AI), neural machine translation (NMT), machine learning, deep learning (DL), augmented translator, translation technology, translation competence

Introduction

First of all, it would be no understatement to claim that the increasing penetration of artificial intelligence (AI) into all walks of life is dramatically changing the functioning of today's over-computerized world. It suffices just to think of how smart homes, web search, online shopping, cybersecurity or even self-driving cars, in the extra-linguistic reality, have been transforming our brave new world, to borrow from Aldous Huxley. Nowadays, AI is viewed as crucial to the digital transformation of contemporary society and it has become an EU priority. The nascent and constantly developing translation industry with its language agents – translators – seems to be on the road to “industrialization”, and thus does not remain unaffected by modern technological trends. In this vein, the relationship between AI and translation, and the repercussions of this complex relationship have become a hot topic in today's post-human translation studies (see e.g. O'Thomas, 2017; Olohan, 2017; Cronin, 2020; Jiménez-Crespo, 2020). The omnipresence of machine translation (MT) as a consequence of the increasing penetration of AI and deep learning (DL) into contemporary translation industry can be illustrated by the latest, and we would wager to say, alarming statistical figures. According to some studies, nowadays, a staggering 99% of all translations are estimated to be made by machines while the world's most popular translation tool Google Translate translates 143 billion words per day, or more precisely, 20 words a day per person, since its launch back in 2016 (Liu, 2021; Way, 2021). For a long time in translation studies (TS), the translator as a person or as the agent of translation has not been on the receiving end of scholars' attention. Especially when translation profession seems to have entered an identity crisis as a result of long-lasting paradoxical conditions of translator functioning (see e.g. Dam & Zethsen, 2016; Ruokonen & Mäkisalo, 2018; Courtney & Phelan, 2019; Ruokonen & Svahn, 2022), the issue of the technological impact on translators' self-concept in the aftermath of the pervasive

AI seems even more pressing. Against the background of the digital paradigm (Gambier, 2016) and its ‘technological turn’ (Jiménez-Crespo, 2020), some AI-based predictions confidently say that machines should be able to perform at a level comparable to human translators by 2024 and to even outperform them within the next two years (Massey & Ehrensberger-Dow, 2017). In addition, the recent Translation Technology Landscape Report by the Translation Automation User Society (TAUS) forecasts that ‘fully automatic useful translation’ shall become the universally accepted norm within the next twenty years or so (Massardo, van der Meer & Khalilov, 2016). With this in mind, the main thrust of this paper is to offer ideas about utopian and dystopian visions of the translator’s person in the light of AI, and more concretely neural machine translation (NMT). In addition, the goal of the paper is to sketch out some possible scenarios of the evolution of the translator’s role in the technologically augmented translation environment. The article also aspires to offer a theoretical conceptualization of the new roles of the human translator within the posthumanism-oriented ontology. Following the implications of transhumanism (O’Thomas, 2017), the main question we pose for TS is to what extent we can still talk about human translation in modern-day translation services in the post-human world. This paper, in line with its overarching aim, is primarily conceptual in nature. The present article is subliminally anchored in science and technology studies (known as STS), concerned with the consequences of science and technology in socio-cultural settings (Hackett et al., 2008), which can be broadened to the translation sector. Our visions of the translator’s roles emerging from the technology-induced ways of functioning draw, first and foremost, on a constructivist approach which “takes a non-essentialist view of technology and its contexts, and [...] produces non-deterministic (indeed anti-deterministic) accounts about the social processes through which actors and social groups engage with technologies” (Olohan, 2017, p. 270). This means that translators are invited to enter a meaning-making process of their roles under the influence of technologies through social interactions, through choices among a great many solutions taking on various directions (Olohan, 2017). Therefore, the tacit ambition of this paper is to awaken a sharpened sensitivity with which we need to consider the conjugated relationship of translation and technology, and offer a critically reflexive space for some futuristic visions, some of which are already taking shape. The paper was written as part of the second author’s 004PU-4/2023 KEGA research project entitled “Innovative Translation Theory and Practice Based on Blended Learning” whose one specific section tackles changing translator’s roles, competences and position in contemporary digital age as a result of the technological and generational turns in TS. The structure of the paper is as follows: Section 1 addresses the key concepts such as MT, its developmental paths and different types, as well as AI and DL. Simultaneously, the section looks at the evolution of the new translator roles in the light of the technological turn in TS. Section 2 zooms in on our proposed model of factors which influence these new roles. Section 3 moves on to discuss translators’ *modus vivendi* within the coordinates of the utopian and dystopian approaches in the light of the omnipresent technologies and their incessant progress.

1. Key concepts and their role in the changing field of translation studies

1.1 The development of machine translation engines

As the title of our paper suggests, the changes in technology often evoke extreme responses from users of translations, as well as from professional translators and trainers alike. The reactions may either take the direction of a utopia, where high-quality automatic translations are available to anyone free of charge (a scenario that is surely not utopian for professional translators, especially from the viewpoint of their *remuneration*), or towards a dystopia, where machines take over and perform operations, including translation, humans cannot stop or control. The fallacy that machines can think, have awareness of their own and make decisions independently from human control, and the fact that machines can learn in certain ways, might be responsible for these extreme views (see Crawford, 2021). Indeed, machines can perform many tasks as precisely as humans, or often even better and faster, which inspires writers of science-fiction books and screenplays to paint extreme *visions of the future*. The technology behind this amazing performance, including the most up-to-date type of MT, neural machine translation, is that of AI. It is important, however, that users of AI, including translators and translator trainers, understand the true nature of this technology and have a vision of the future which is not based on fiction. The following section is going to explain how neural machine translation differs from its predecessors.

1.1.1 The pre-neural era

Varga (2016), drawing on Klaudy (2004), describes the process of translation in the three steps of decoding, transcoding and encoding and differentiates between direct, indirect and knowledge-based machine translation systems in the pre-neural era of machine translation. Direct machine translation systems simply substituted source language words with their dictionary equivalents in the target language and thus skipped the three steps above. Indirect systems already involved the three steps and included an “interlingua of intermediary representation” (Varga, 2016, p. 157). The third generation of MT systems is called knowledge-based, as they rely on the knowledge about language. This category includes well-known systems such as rule-based and statistical machine translation. Rule-based systems rely on rules and grammars of language pairs. The first systems were developed in the 1970s. Statistical machine translation became widely researched and employed in the 1980s and 1990s. In this system of MT, translations are created with the help of statistical models based on bilingual text corpora. Google launched Google Translate, its statistical machine translation service in April 2006. These systems were fairly limited in their function, however, they could still help translators speed up the process of translation in some language combinations and for certain text genres. Google Translate, which offered its services free of charge to the public, was widely criticized and made fun of in its first decade of functioning. As it was freely *accessible*, many users without or with *expertise* in languages and translation used it to find out the meaning of texts and phrases. However, these systems were not widely used by human translators for completing their translation assignments until the emergence of a new type of MT system based on AI, DL and an underlying network that imitates the working of the human nervous system.

1.1.2 The neural era

Neural machine translation (NMT) engines are trained on large amounts of data. The system learns from the patterns in the texts, identifies connections between words and works by predicting the likelihood of certain word sequences, based on the data used for training. The NMT output is radically different from that of previous systems. It is more accurate, human-like and according to some researchers, has achieved human parity, especially with the arrival of transformer models (Hassan et al., 2018; Laki and Yang, 2022) Even if this claim may sound exaggerated, the quality of NMT input is continuously improving across various domains including business, industry and entertainment¹. These systems are typically not controlled or trained by translators, and translators can rather be considered as a subgroup of users in this case. The output produced by these engines is often hard to predict and interpret even from the viewpoint of the engineers who trained the engine. In November 2016, the most widely used, freely accessible online machine translation engine, Google Translate switched to an NMT engine. For many users who needed an informative (not professional) translation of texts, documents, or websites, this switch has offered a goldmine of free, fast and easy translation opportunities. Thus, the machine seems to be taking over a substantial part of the human translators’ work. To some users’, translators’ and clients’ great relief, and to others’ anxiety, the question which is often posed is whether machines will eventually take over the role of human translators. A decade or two ago when thinking about translation, one could be absolutely sure that a human was involved in the process of transforming a text from one language to another. Nowadays, in many translation briefs, machines are also, or even solely involved in translating the source language text – and the human translator is left with the role of ensuring that the resulting text is fit-for-purpose.

1.2 The bases of NMT: AI and DL

With the emergence of the new, almost human-like, and free translation tool with AI, capable of DL (concepts which only a fraction of NMT users seem to grasp, though), one may think that we are heading towards a translation industry where human translators can be phased out. Although the exact pace of the change is hard to predict, what seems to be certain is that the translator’s role is changing, and interacting with technology is becoming an unavoidable and continuously increasing part of completing translation assignments. In the search for explanations on what AI and DL are, on the one hand, the *Encyclopaedia Britannica* suggests the following with regard to the former: “[...] the ability of a digital computer [...] to perform tasks commonly associated with intelligent beings. The term is frequently applied to the project of developing systems endowed with the intellectual processes characteristic of humans, such as the ability to reason, discover meaning, generalize, or learn from past

¹ See the 2022 Machine Translation Report available at <https://www.memsource.com/uploads/2022/04/22/memsource-mt-report-q2-2022.pdf>

experience².” However, AI is the work of humans, as NMT systems are, with humans involved when training the system with large amounts of preferably selected and cleaned language data. The essence of AI comes adequately to expression in the acute explanation by Mueller & Massaron as they contend the following:

When thinking about AI, you must consider the goals of the people who develop an AI. The goal is to mimic human intelligence, not replicate it. A computer doesn't truly think, but it gives the appearance of thinking. However, a computer actually provides this appearance only in the logical/mathematical form of intelligence. [...] Yes, some AI is modeled to stimulate human intelligence, but that's what it is: a simulation (Mueller & Massaron, 2019, p. 12).

On the other hand, DL is a subset of AI. As Mueller & Massaron argue, “in both cases, algorithms appear to learn by analyzing huge amounts of data [...]. However, deep learning varies in the depth of its analysis and the kind of automation it provides [...]. It processes data using computing units, called *neurons*, arranged into ordered sections, called *layers*. The technique at the foundation of deep learning is the neural network” (Mueller & Massaron, 2019, pp. 16-17). Yet the authors call the readers' attention to the fact that “the computer still doesn't understand anything and isn't aware of the solution it has provided (ibid., p. 17)”. The layers and processes in DL are not mysterious and impossible to trace as sci-fi fiction and films often suggest, and the solutions provided by DL are far from being always correct and more reliable and accurate than those of humans. These systems are made and controlled by humans, even though a large number of users who reap the benefits of this new technology cannot fully grasp its functioning. However, it would not be the first time people look for demons in scientific developments when not being able to grasp their nature and functioning (see Canales, 2020; reviewed by Skibba, 2020).

1.3 NMT: types and access

The most frequently used NMT engines offering free-to-use MT³ in May 2022 are as follows: Google Translate in the first place, with 133 supported languages, 100 billion words translated in a day and some 500 million users⁴; Microsoft Translator offering translations between 110 languages enjoys the second place; and the third place is taken by DeepL, the system which translates between 26 languages and claims to be the world's most accurate machine translation system. These engines were presumably trained on massive amounts of freely available data in various languages and are termed *general engines*, meaning that their language profile is general, not having expertise in any particular domain. It is probably due to this engine type that machine translation systems are frequently seen as intelligent, human-like systems which might take over the role of human translators and offer free services in a market previously dominated by humans charging their clients for translation assignments. It is important to mention that free engines provide only limited services, though. Some free MT engines offer professional services for an extra charge to translate different types of files, use unlimited translation or add terminology and glossaries. Companies and clients requiring translations in a specialized field can benefit from a *custom engine*, which is trained on texts suited to their needs, or a combination of the two engine types. Creating these engines requires more work and costs (more) money. Beside companies, institutions like international organisations may also have the financial background and a pool of translated texts needed for training the NMT, as it is the case of eTranslation, an online machine translation service provided by the European Commission, intended for European public administrations, small and medium-sized enterprises and university language faculties, among others. eTranslation claims to provide quick, raw machine translations from and into any official EU language, including Icelandic, Norwegian, and since the spring of 2022, also Ukrainian. The tool can be categorized as a provider of custom engines offering ten different domains including EU formal language, financial, public health or cultural domains that can produce more accurate translations in their field than in the general domain, which can be seen as a general engine. eTranslation, like other engines, can be used in an integrated form in CAT tools. The advantage of this application is that, depending on the settings, MT solutions are offered for every segment which has no matches for translation memory. Having reviewed the paths of development and opportunities which the new NMT

² www.britannica.com

³ Information based on <https://www.textunited.com/blog/best-free-machine-translation-engines/>

⁴ https://en.wikipedia.org/wiki/Google_Translate

technology offers to the user, the question now arises how professional translators will be ultimately affected by these changes and how they feel about the new tasks in their jobs.

1.4 The evolution of the new translator roles in the light of the technological turn

With the professionalization of the translation industry and a growing emphasis on quality, the translation process has undergone a tremendous change in the last two decades and translation is no longer regarded as a mere transfer of meaning from a source language to a target language but a complex process in which translator proper is only one step. According to the ISO 17000: 2015 quality assurance standard, the translation work cycle consists of preparation, execution and feedback, involving several agents in the process. This change has given rise to a number of new roles which trained translators can take (e.g. terminologist, QA specialist, reviser, reviewer etc.), each with a new set of competences. While some translators might fear that their creative intelligence and knowledge will no longer be needed in the foreseeable future, even more new roles related to the translation work cycle are emerging in the wake of the technological turn: those of the translation technologist and the post-editor. The question arises whether the future task of the translator will incorporate the new competences needed for these roles, or these occupations are emerging in their own right. Seen through a diachronic lens, the translator's competences were defined in various models and were made up of several components that suggested that the translator was a person with formidable knowledge and a great many talents. Just to mention the two most commonly cited models, the PACTE model (2003) lists communicative competence in two languages, extra-linguistic, instrumental-professional, psycho-physiological, transfer and strategic competence. In the latest and widely used employability-oriented model of the European Masters in Translation (EMT) Competence Framework (2022), five main areas of competences for professional translators are emphasized: language & culture, translation, technology, personal & interpersonal and service provision competences. The five competences are broken down into thirty-six sub-competences which translator trainees should master by the end of their studies. The question crops up how the profile of the translator changes if machine translation becomes an integral part of the process. The topic of technology forms the backbone of the revised EMT model of 2022, yet the authors warn that the limits of machine translation have become apparent over time and “human intelligence, knowledge, and skills are still the key factors in delivering quality translations” (p. 2). In the list of subcomponents, implicit references are made to MT when describing the choice and use of appropriate tools for translation, and explicit reference is made to MT-related skills and MT literacy, as illustrated by the following:

14 Post-edit MT output using style guides and terminology glossaries to maintain quality standards in MT-enhanced translation projects (p. 8, language & culture, translation),

18 Understand the basics of MT systems and their impact on the translation process, and integrate MT into a translation workflow where appropriate (p. 9, technology).

These new skills can be assigned to the new roles mentioned in the first paragraph of this section, that is the post-editor and translation technologist.

1.4.1 Post-editor

Post-editors are practically the first revisers of machine translated texts. Their task is to compare the source text with its machine translation, which is referred to as raw input and to check fullness of content, comprehensibility, accuracy of language, terminology, formatting and style, among other features of the text. Post-editing as an activity can have different levels from light (LPE) to full post-editing (FPE), and so does the tariff charged for the assignment. Light post-editing means “raw MT is only modified where absolutely necessary to ensure that the output is legible and accurately conveys the meaning of the source document. The post-editor should be especially mindful of errors that might hinder the document's purpose or outright subvert it. Without review, raw MT can create embarrassing results”⁵. Full post-editing, on the other hand, entails that

raw MT is thoroughly reviewed and modified to ensure that there are no errors whatsoever. Where LPE focuses on the bare essentials of accuracy and legibility, FPE considers a number of factors, including but not limited to:

⁵ <https://www.memsource.com/blog/post-editing-machine-translation-best-practices/>

- stylistic and tonal consistency within the document (and with other appropriate documents)
- the absence of all grammatical errors
- appropriate cultural adjustments for the target language (such as idiomatic expressions)⁶.

As stated on the Memsource website, the outcome of FPE should persuade the target reader that it was composed in the target language (ibid.). At the time of writing this study, translation agencies are not yet posting vacancies for post-editor positions in our respective linguocultures, but rather find translators for post-editing assignments.

1.4.2 Translation technologist/Language technology expert⁷

The task of the translation technologist/language technology expert is not yet as clear-cut as that of the post-editor in the translation industry as it is not tightly connected to a text-based activity as in the case of post-editing. So what does translation technology involve? In contemporary translation industry, on top of doing translation, post-editing and/or revision, translation technologists are tech-savvy translators capable of preparing texts for translation in CAT tools or MT engines. Translation technologists can do desktop publishing (DTP) tasks, compile terminologies and feed them to MT engines. They can also give advice and solve problems related to the technological aspects of translation.

1.4.3 The integration of the new roles into the translator's profile

After presenting the new emerging professions, the following questions may be posed: Are these new roles replacing previous translators? Or are they going to complement each other in the ever-expanding translation industry for the rest of the 21st century? Both scenarios are possible, although the disappearance of translators is still not very likely, no matter how fast the quality of machine translation is improving. Notably, creativity is still much in demand for translation assignments, especially with regard to literary translation⁸ (see Guerberof Arenas & Toral, 2022). At the same time, informed decisions involve a deep understanding of the context of texts, and the narrativity skills necessary for the translation of some text genres (Katan, 2023) are still the skills not possessed by intelligent machines. Moreover, it should be noted that professional translators seemed to face challenges in the field of occupational prestige (Dam & Zethsen, 2008) and visibility (Venuti, 2008; Liu, 2013) even in the pre-NMT era. While intelligent machines including NMT may further lower the prestige of professional translators, as the users of translations think the role of these professionals has become marginal in producing high quality translations, the visibility of human translators can actually be strengthened in the era of NMT. Clients requiring high-quality, revised translations can confirm their position and enhance the visibility of professional translators. In the pre-NMT era, service provision was already listed among the core translator's competences (EMT, 2009), and communicating the importance of human control in marketing human translation skills and producing high-stake translations is of paramount importance (see Massey & Ehrensberger-Dow, 2017). We believe that both of these strategic practices can contribute to the increased prestige and visibility of the work of human translators. With the integration of the new translator roles into the contemporary translator's profile, we also suggest that emotional competence, as an underarticulated dimension of contemporary translator training, should receive more attention in order to make translators fit for emotion-laden aspects of translational action (see also Hubscher-Davidson, 2018; Hubscher-Davidson & Lehr, 2021; Lehr, 2021 for more detail). This is because emotions, as an antidote to machine translation, are also linked with happiness at work, that is how translators, as working agents of the language industry, perceive their professional well-being with regard to particular parameters of occupational prestige as well as psychological determinants (see Bednárová-Gibová & Majherová, 2023). Our task, therefore, as technology keeps advancing, is to redefine and to continuously review the set of competences modern-day translators need to possess in order to be able to perform their tasks in the constantly evolving translation industry. At the same time, we need to recognize the need to train highly skilled language professionals, linguists, who are not translators, revisers or post-editors, but have the necessary

⁶ <https://www.memsource.com/blog/post-editing-machine-translation-best-practices/>

⁷ Here we treat both terms as more or less loose synonyms. However, we think that “translation technologist” complies more with the industry pressure while “language technology expert” shows greater fidelity to the language aspects combined with the impact of technology.

⁸ <https://www.memsource.com/blog/fostering-creativity-in-the-machine-translation-era/>

competences to perform any of these specific tasks as these are more overlapping than clear-cut categories (Konttinen et al., 2020).

2. A tentative model of the factors influencing the translator's changing role

In the paragraphs above, the key concepts behind the technological innovations in the translation industry were explained and their repercussions, and by-products were analyzed. The analysis yielded a list of eight factors which influence the translator's changing profile in the future. They may be summed up as follows:

- the translator's *future vision* of their professional life;
- the translator's level of *expertise* including digital tools used in translation;
- the relative value of *remuneration* they receive for their work;
- the *visibility* of the work and worth of a translator in producing comprehensible translations;
- the *prestige* of translators among other professions;
- the level of *happiness at work* in the translator's experience;
- the *accessibility* of high-quality digital tools and knowledge about their use in the translation profession;
- the *control* the translator can exert over their own role as translator in the market.

The suggested concepts are displayed in the word cloud in Figure 1.



Figure 1: Factors influencing the translator's changing role

These factors are seen from the perspective of the individual professional translator taking on assignments and earning their living by completing them and receiving new ones. In our view, the individual's place on the cline between a utopian and dystopian future of professional translators is a function of these factors. However, empirical evidence needs to be collected to verify the concepts in the cloud in the form of exploratory interviews that can confirm the presence of these factors in the translator's role and help add new concepts. At the same time, quantitatively-minded questionnaires that may help establish the degree of the presence of the factors, reveal the ones that show a dystopian trend and possibly suggest some remedies, are desirable in order to draw some appropriate conclusions.

3. Contemporary translators' world within the coordinates of utopian & dystopian approaches

Based on the gradual progression of the ideas explored so far in this paper, we are now coming to its final thematic section which will focus on the summary portrayal of utopian and dystopian approaches to the translator's functioning in the language industry. The lexeme *utopia*, originally coined as a neologism by Thomas More as early as the 16th century to name a fictitious island, has over centuries come to denote in its simplistic essence "the search for the good society, or at least a much improved one [...] for the betterment of human life" (Parrinder, 2015, p. 1). In this sense, utopia epitomizes "a political blueprint, a philosophical thought experiment, a design for social living or a vision of individual contentment and harmony" (ibid., p. vi). This implies that this particular conceptualization of utopia is embedded more or less in the positive perception of the state of affairs. In addition, the idea of a 'good' place and the implicitly present happy society is acknowledged in one of the four essential historical characteristics of the concept⁹, as argued by Vieira (2010). Having regard to H.G. Wells' distinction between classical and modern utopias (1905), where the former is commonly associated with perfection and the latter with the idea of progress, we believe that the present-day translation industry in its utopian fashioning seems to stand closer to what we call a modern utopia. In

⁹ The other characteristics of the utopia concept include (1) the literary form, (2) the impact on the reader to take action and (3) a matter of attitude connected with the desire for a better life (see Vieira, 2010, p. 6 for greater detail).

our view, when applying Wells' approach to translators, finding themselves in a technology-augmented environment in the 2020s, technology is interpreted as an aid to the human translator. Therein, the translator's toolkit of competences (see e.g. EMT, 2022) is augmented by the quickly developing technology impacting the way translations, depending on text type, are produced nowadays. These unstoppable innovations include CAT tools, neural machine translation (NMT), post-editing skills and openness to experiential learning (Massey & Ehrensberger-Dow, 2017). The augmented translation process can result in high-quality translation output achieved in considerably shorter time and with much less effort compared to human translation. According to this utopian approach to the new world of translation, the translator's role is altered in a way that the emphasis has shifted, we dare say, unnervingly, from routine and creative translation operations to editing, post-editing and revision processes (Pym, 2013). On the one hand, the use of NMT boosts translators' productivity, but on the other hand, the ever increasing reliance on technology may force our language industry agents to become more automatic in their work. This change in translation practices, fuelled by 'fixation' on preselected translation solutions is believed to do harm to translators' creativity and loss of control in the stage of reflexive interpretation in translation (Massey & Ehrensberger-Dow, 2017). A salient difference between the literary and our translational interpretation of the modern utopia is that it is not set in the future, but we are witnessing its story unfold right before our eyes. However, if we want to prevent today's translation industry from being in a sense a pastiche of Aldous Huxley's famous novel *Brave New World*, understood as a satire of social effects of advanced technologies with their impact on efficient but docile workforce, more focused attention needs to be given to the current translator training in higher education institutions. This requires, first and foremost, taking stock of the changing translator's roles, brought about by the omnipresence of technology and tools. These range from a *data engineer*, *engine manager*, *subject matter expert*, *training data manager* to *post-editor* (Bessenyei, 2022), which seem to have gained wide currency in contemporary translation practices. In addition, Kenny (2020) emphasizes the importance of technology in translator training, which expresses the preferences of the changing translation market to carry out translation tasks while being tech-savvy in CAT-tools and MT systems, as suggested earlier in this paper. An even more critical stance is taken by Katan (2016) who stresses the need for 21st century translators to shift away from their classic role of *copier* or *wordsmith* to that of a *transcreator*, thus advocating a 'transcreational turn' in the survival of the fittest on the market. Nevertheless, what all these new designations have in common is that despite the aid of technology, human interaction is still needed. It is important to note here that human interaction involves expertise and a sense of control over the whole process of translation, in contrary to the slavish tasks many workers do (e.g. data collection and cleaning,) to correct and complement the work carried out by systems including AI (Crawford, 2021). This has recently been compared by Bessenyei (2022) at the TransELTE conference to a change in translators from a pilot to a crisis manager when a machine is taking care of language tasks, but still in tandem with the human being in order to achieve desirable results. Although the new names for designating the translator's new language jobs, as given above, suggest that the times are indeed changing, we find it critically important to emphasize that the changing roles of translators should be placed along a cline between the utopian and dystopian ends. To what extent we interpret the altered translators' roles as utopian/dystopian hinges on how much light (translate intralingually as hope) or darkness (in the sense of the macabre) we assign to them. This means to what extent we see the new translators' jobs as innovative, beneficial, progressive or detrimental and threatening. The grey transitory zone between the utopian and dystopian can be, for example, manifested in the newer concept of echoborg, i.e. a person whose words and actions are determined by a computer program, that is AI (see Corti & Gillespie, 2015). When applied to translators, this could mean that their translation output can be determined to a potentially significant extent by NMT. Depending on how ethically responsibly, among other things, the translator works with what he receives from AI, the utopian or dystopian takes its shape. A recent development of AI with surprisingly human characteristics is ChatGPT, released in November 2022; a model that "interacts in a conversational way [where] the dialogue format makes it possible for ChatGPT to answer follow-up questions, admit its mistakes, challenge incorrect premises, and reject inappropriate requests"¹⁰, just like humans do. Turning our attention to the dystopian approach in literature, as prefigured e.g. by Aldous Huxley's *Brave New World*, George Orwell's *1984* or Ray Bradbury's *Fahrenheit 451*, dystopia

¹⁰ <https://openai.com/blog/chatgpt>

(or negative utopia) refers to evil social and political developments, where a parody of utopian aspirations, revealing its fallacies, also has its place (Claeys, 2010). Dystopias in literature usually provoke despair and terror because their function is to primarily serve as a serious menace (Vieira, 2010). Thus, the dystopian themes of technological dominance, control and helplessness, loss of individualism, destruction and survival, frequently acknowledge the significance of (far-fetched) sci-fi in their interpretation. When applying the dystopian conceptsphere to translators, in the translational line of interpretation, language-centred AI completely takes over the role of translators. This means that AI becomes an overlord, and the human intervention is no longer needed as human translators work at arguably slower, less precise and more expensive rates in comparison to machines. Drawing a parallel with Veenhoven's classic sci-fi movie *Robocop*, where there is a cyborg acting as a hero policeman, machines act like hero translators, thus making human translators expendable to a large extent. Of course, this frightening dystopian idea of a replacement of humans by machines depends in our opinion on the text type for translation. At the present rate of the development in NMT, literary translation seems relatively safe, particularly due to its largely unpredictable and non-repetitive language format and the inherent level of creativity. This was aptly expressed by Douglas Hofstadter (2018), a professor of cognitive science and comparative literature, who somewhat ironically remarked in this connection that "when, one day, a translation engine crafts an artistic novel in verse in English, using precise rhyming iambic tetrameter rich in wit, pathos and sonic verve, then I'll know it's time for me to tip my hat and bow out." With a view to literary discourse, the complexity and cognitive level of the text still requires human translation which excels in capturing stylistic nuances of the source text (see e.g. Mohar, Orthaber & Onič 2020). Similarly, emotional fragilities of machine translations as well as a lack of socio-cultural aspects of meaning and personal variables have been confirmed in the research by Das (2018). Regardless of the literary discourse, however, the scope of such texts is quickly narrowing thanks to the immense development of AI and NMT. In particular, in specialised texts with a thematic focus on the areas of automobile industry, military defence, IT, electronics and medicine, NMT has been doing extremely well (Absolon, Munková & Welnitzová 2018). This is possibly due to their terminological layering which is prone to deeper processing by NMT systems. More research steered in the right direction of text types, text length, and translator sampling is needed in the foreseeable future in order to gain a better insight into how NMT should be integrated into the workflow and how the risks entailed can be evaluated (see Nitzke et al., 2019). In this way, we will be able to eschew the dystopian reality, as incurred by the ever progressing penetration of NMT into all walks of the translation industry, vividly depicted, outside the world of translation, in the movies such as *The Maze Runner*, *The Hunger Games* or *Snowpiercer*. Although translators' conditions were not directly the topic of these movies, and this article abstains from an analysis of dystopian cinematography, the feelings of horror and hopelessness as communicated by the movies, can be extracted in order to be able to imagine the translators' frames of mind when considering their futuristic replacement by machines, however near or far, possible or impossible. In order to ensure the survival of translators in the light of the dystopian take on their functioning, however, it is our sincere hope that the idea of a total replacement of the human factor will only remain reserved for our wildest dreams, and this prediction will not turn out to be eventually wrong.

Conclusion

In closing, what remains to be reiterated is that AI has been radically transforming the translation industry and, as a result, translator competences. The new translator roles, as discussed in the paper, require reactions and the reinforcement of the position of the professional translator at industry level in the fields of prestige, control, visibility and a clearer vision of their role in the future. At the same time, these changes trigger a number of questions for translation studies and translator training. For example, are we talking about distinct new competences, or rather overlapping ones in the translator's profile? Do we need to redefine translation itself? How should the new translator roles be integrated into translator training education in higher education institutions in order to make translation trainees adequately prepared for the language industry? Should the new roles be integrated in the form of separate new courses tailored to the needs of the language industry, or rather progressively integrated into already existing courses? In the case of the latter, how should this be achieved? These are some of the challenges for translation pedagogy. Although our mission was not to provide a definite answer to the emergent questions, the consequences of the new translator roles imply what remains to be resolved in the long term. Another thing we have to consider is to what extent we can speak about the human in

translation in the post-human world will continue to remain largely in the hands of the translator and their ethical approach to working with the outputs of AI. Only this awareness can help keep translation a truly special human interlingual exercise which will clearly distinguish human translators from artificial systems designed by humans for complementing human activities.

REFERENCES:

- Absolon, J., Munková D., and Welnitzová, K. (2018)** Machine translation: translation of the future? Machine translation in the context of the Slovak language. Praha: Verbum, 78 p.
- Bednářová-Gibová, K., and Majherová, M. (2023)** A Socio-Psychological Profiling of Translators as Working Agents in the Language Industry. Prešov: Vydavateľstvo Prešovskej univerzity, 167 p. (in print)
- Bessenyei, G. (2022)** From pilot to crisis manager: the impacts of machine translation on the work of professional human translators. A talk given at TransELTE 2022 Conference. Budapest: Eötvös Loránd University.
- Claeys, G. (2010)** The origins of dystopia: Wells, Huxley and Orwell. In G. Claeys (ed.) *The Cambridge Companion to Utopian Literature*. Cambridge: Cambridge University Press, pp. 107-134.
- Courtney, J., and Phelan, M. (2019)** Translators' experiences of occupational stress and job satisfaction. // *Translation & Interpreting*, 11(1), pp. 100-113. <<http://www.trans-int.org/index.php/transint/article/view/848/0>>
- Canales, J. (2020)** Bedeviled: A Shadow History of Demons in Science. Princeton: Princeton University Press, 416 p.
- Corti, K., and Gillespie, A. (2015)** A truly human interface: interacting face-to-face with someone whose words are determined by a computer program. // *Frontiers in Psychology*, 6, Article 634. <<https://doi.org/10.3389/fpsyg.2015.00634>>
- Crawford, K. (2021)** Atlas of AI: Power, Politics, and the Planetary Costs of Artificial Intelligence. New Haven: Yale University Press, 288 p.
- Cronin, M. (2020)** Translation and posthumanism. In N. Pokorn and K. Koskinen, (eds.) *Routledge Handbook of Translation and Ethics*. London: Routledge, pp. 279-293.
- Dam, H. V., and Zethsen, K. K. (2008)** Translator status. A study of Danish company translators. // *The Translator*, 14(1), pp. 71-96.
- Dam, H. V., and Zethsen, K. K. (2016)** 'I think it is a wonderful job'. On the solidity of the translation profession. // *The Journal of Specialised Translation*, 25, pp. 174-187. <https://www.jostrans.org/issue25/art_dam.php>
- Das, A. K. (2018)** Translation and Artificial Intelligence: Where are we heading? // *International Journal of Translation*, 30(1), pp. 1-26.
- European Commission (2009)** EMT (European Master's in Translation) Expert Group. 2009. Competences for Professional Translators, Experts in Multilingual and Multimedia Communication. Brussels: European Commission.
- European Commission (2022)** EMT (European Master's in Translation) Expert Group. 2022. Updated Version of the EMT Competence Framework. Brussels: European Commission. <https://commission.europa.eu/news/updated-version-emt-competence-framework-now-available-2022-10-21_en>
- Gambier, Y. (2016)** Rapid and radical changes in translation and translation studies. // *International Journal of Communication*, 10, pp. 887-906. <<https://ijoc.org/index.php/ijoc/article/view/3824>>
- Guerberof Arenas, A., and Toral, A. (2022)** CREAMT: Creativity and narrative engagement of literary texts translated by translators and NMT. In Proceedings of the 23rd Annual Conference of the European Association for Machine Translation. Ghent: European Association for Machine Translation, pp. 355-356.
- Goodfellow, I., Bengio, Y., and Courville, A. (2016)** Deep Learning. Cambridge, MA: MIT Press, 800 p.
- Hackett, E. J., Amsterdamska, O., Lynch, M. E., and Wajcman, J. (2008)** Introduction. In E. J. Hackett, O. Amsterdamska, M. E. Lynch and J. Wajcman, (eds.) *The Handbook of Science and Technology Studies*. 3rd ed. Cambridge, MA: MIT Press, pp. 1-7.
- Hassan, H., Aue, A., Chen, C., Chowdhary, V., Clark, J.,** Achieving human parity on automatic Chinese to English news translation. // (cit. 12-03-2022). <<https://doi.org/10.48550/arXiv.1803.0556>>

- Federmann, C., Huang, X., Junczys-Dowmunt, M., Lewis, W., Li, M., and Liu, S. (2018)
Hofstadter, D. (2018)
- The shallowness of Google Translate. // *The Atlantic*. (cit. 15-04-2022).
<<https://www.theatlantic.com/technology/archive/2018/01/the-shallowness-of-google-translate/551570/>>
- Hubscher-Davidson, S. (2018)
- Translation and Emotion. A Psychological Perspective. New York: Routledge, 235 p.
- Hubscher-Davidson, S., and Lehr, C. (2021)
- Improving the Emotional Intelligence of Translators: a Roadmap for an Experimental Training Intervention. London: Palgrave Macmillan, 108 p.
- Jiménez-Crespo, M. A. (2020)
- The “technological turn” in translation studies. Are we there yet? A transversal cross-disciplinary approach. // *Translation Spaces*, 9(2), pp. 314-341. <<https://doi.org/10.1075/ts.19012.jim>>
- Katan, D. (2016)
- Translation at the cross-road: time for the transcultural turn? // *Perspectives*, 24(3), pp. 365-381.
<<https://doi.org/10.1080/0907676X.2015.1016049>>
- Katan, D. (2023)
- Tools for transforming translators into *homo narrans* or ‘what machines can’t do’. In G. Massey, E. Huertas-Barros and D. Katan (eds.) *The Human Translator in the 2020s*. New York: Routledge, pp. 74-90.
- Kenny, D. (2020)
- Technology in Translator Training. In: M. O’Hagan (ed.) *The Routledge Handbook of Translation and Technology*. London/New York: Routledge, pp. 498-515. <<https://doi.org/10.4324/9781315311258>>
- Konttinen, K. Salmi, L., and Koponen, M. (2020)
- Revision and post-editing competences in translator education. In M. Koponen, B. Mossop, I. S. Robert and G. Scocchera (eds.) *Translation Revision and Post-Editing*. London: Routledge, pp. 187-202.
- Laki, L., and Yang, Z. G. (2022)
- Neural machine translation for Hungarian. // *Acta Linguistica Academica*, 69 (4), pp. 501-520. <<https://doi.org/10.1556/2062.2022>>
- Lehr, C. (2021)
- Translation, emotion and cognition. In F. Alves and A. L. Jakobsen, (eds.) *The Routledge Handbook of Translation and Cognition*. London/New York: Routledge, pp. 294-309.
- Liu, F.-M.C. (2013)
- Revisiting the Translator’s Visibility: Does Visibility Bring Rewards? // *Meta*, 58(1), 25-57. <<https://doi.org/10.7202/1023808ar>>
- Liu, H. (2021)
- Foreword. In E. Angelone, M. Ehrensberger-Dow and G. Massey, (eds.) *The Bloomsbury Companion to Language Industry Studies*. London: Bloomsbury Academic, pp. viii-xii.
- Massardo, I., van der Meer, J., and Khalilov, M. (2016)
- Translation Technology Landscape Report. De Rijp: TAUS.
- Massey, G., and Ehrensberger-Dow, M. (2017)
- Machine learning: implications for translator education. // *Lebende Sprachen*, 62(2), pp. 300-312. <<https://doi.org/10.1515/les-2017-0021>>
- Mohar, T., Orthaber, S., and Onič, T. (2020)
- Machine translated Atwood: utopia or dystopia? // *ELOPE: English Language Overseas Perspectives and Enquiries*, 17(1), pp. 125-141. <<https://doi.org/10.4312/elope.17.1.125-141>>
- Mueller, J. P., and Massaron, L. (2019)
- Deep Learning for Dummies (1st ed.). Hoboken, NJ: Wiley, 368 p.
- Nitzke, J., Hansen-Schirra, S., and Canfora, C. (2019)
- Risk management and post-editing competence. // *The Journal of Specialised Translation* 31, pp. 239-259.
<https://www.jostrans.org/issue31/art_nitzke.php>
- Olohan, M. (2017)
- Technology, translation and society. // *Target*, 29(2), pp. 264-283.
<<https://doi.org/10.1075/target.29.2.04olo>>
- O’Thomas, M. (2017)
- Humanum ex machina. // *Target*, 29(2), pp. 284-300.
<<https://doi.org/10.1075/target.29.2.05oth>>
- PACTE Group. Beeby, A., Fernández Rodríguez, M., Fox, O., Hurtado Albir, A., Neunzig, W., Orozco, M., Presas, M., Rodríguez Inés, P., and Romero L. (2003)
- Building a translation competence model. In F. Alves (ed.) *Triangulating Translation: Perspectives in Process Oriented Research*. Amsterdam: John Benjamins, pp. 43-66.
- Parrinder, P. (2015)
- Utopian Literature and Science. From the Scientific Revolution to Brave New World and Beyond. Houndmills, Basingstoke, Hampshire: Palgrave Macmillan, 222 p.

- Pym, A. (2013)** Translation skill-sets in a machine-translation age. // *Meta: Journal des traducteurs/ Translators' Journal*, 58(3), pp. 487-503.
<<https://doi.org/10.7202/1025047ar>>
- Ruokonen, M., and Mäkisalo, J. (2018)** Middling-status profession, high status work: Finnish translators' status perceptions in the light of their backgrounds, working conditions and job satisfaction. // *Translation & Interpreting*, 10(1), pp. 1-17.
<<http://www.trans-int.org/index.php/transint/article/view/681>>
- Ruokonen, M., and Svahn, E. (2022)** Comparative research into translator status: Finland and Sweden as a case in point. // *Perspectives: Studies in Translation Theory and Practice*, 30(5), pp. 859-875. <<https://doi.org/10.1080/0907676X.2021.1953546>>
- Skibba, R. (2020)** The demons and devils that haunt scientists' imaginations. // *Nature*, 588, pp. 27-28.
- Varga, Á. (2016)** Machine translation. In I. Horváth (ed.) *The Modern Translator and Interpreter*. Budapest: Eötvös University Press, pp. 153-165. <<https://www.eltereader.hu/media/2016/04/HorvathTheModernTranslator.pdf>>
- Velasco, C. (2016)** Google Translate gets neural machine translation to deliver more natural answers. In *Tech Times*, November 2016.
<<https://www.techtimes.com/articles/186023/20161116/google-translate-gets-neural-machine-translation-to-deliver-more-natural-answers.htm>>
- Venuti, L. (2008)** *The Translator's Invisibility: A History of Translation*. London: Routledge, 336 p.
- Vieira, F. (2010)** The concept of utopia. In G. Claeys (ed.) *The Cambridge Companion to Utopian Literature*. Cambridge, MA: Cambridge University Press, pp. 3-27.
- Way, A. (2021)** Where are we at today? In E. Angelone, M. Ehrensberger-Dow and G. Massey, (eds.) *The Bloomsbury Companion to Language Industry Studies*. London: Bloomsbury Academic, pp. 311-332.
- Wells, H.G. (1905)** *A Modern Utopia* // (cit. 05-03-2023).
<<https://www.marxists.org/reference/archive/hgwells/1905/modernutopia/ch02.htm>>