ARTIFICIAL INTELLIGENCE IN TRANSLATION: A TRANSFORMATIVE FORCE IN GLOBAL COMMUNICATION

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Translation, long considered an exclusively human cognitive-linguistic activity, is now one of the fields most significantly influenced by recent developments in artificial intelligence. The rapid evolution of neural machine translation (NMT) - exemplified by systems such as DeepL, Google Translate, and ChatGPT - has reshaped not only the efficiency of translation processes but also the expectations of clients and translation service providers.

The rise of AI-assisted workflows necessitates a rethinking of what it means to be a translator in the digital age, prompting urgent questions in both industry and academia. What is the role of the human translator when machines can produce near-human outputs? How should translator training be adapted to prepare professionals for AI-mediated environments? What are the ethical and legal concerns arising from post-editing, data privacy, and authorship attribution?

NMT systems have substantially improved the fluency and naturalness of machine-generated text by leveraging deep learning and massive multilingual corpora. Unlike their rule-based or statistical predecessors, modern NMT engines can produce contextually coherent output that often surpasses earlier benchmarks of intelligibility. These systems are increasingly integrated into computer-assisted translation (CAT) tools, like Trados Studio, MemoQ, Crowdin and others, where translators engage in post-editing rather than translating from scratch. Although productivity increases are often cited as the primary benefit, the quality of output still varies across language pairs, domains, and text types. A significant innovation lies in customizable NMT platforms that allow users to train engines on domain-specific corpora, improving terminology consistency and stylistic adequacy. This opens up possibilities for domain adaptation in legal, medical, or technical translation, as well as for enterprises managing internal translation workflows.

AI in translation is not limited to the replacement of human translation through NMT. AI is increasingly embedded in a range of auxiliary functions which, among others, include:

1) terminology extraction and management - the Sketch Engine tool and AI plugins for CAT software can now extract terms and cluster them by semantic fields;

2) automated quality assurance (QA) - AI can assist in finding errors in terminology consistency, numerical accuracy, and formatting - tasks that previously required human attention;

3) voice-to-text and speech translation - the convergence of speech recognition and machine translation enables real-time interpreting support and live subtitle generation, e.g. camb.ai;

4) emotion analysis and text classification - useful in localization and transcreation, AI can detect tone, emotional valency, and rhetorical function to guide culturally sensitive adaptations.

Thus, currently the role of the translator is evolving from language converter to language analyst, editor, and process manager. This evolution demands new competencies, like post-editing skills to be able to assess and revise machine output efficiently and consistently, data literacy to understand how translation engines work, including the risks of bias and hallucinations, critical reflection to recognize when machine-generated output is linguistically plausible but conceptually or culturally incorrect and tool fluency to be comfortable with multiple platforms, plugins, and AI-integrated CAT environments. These advancements in translation industry must be reflected in translator education. Curricula should include modules on AI literacy, covering both theoretical and practical aspects. These developments are already being addressed in translator training programs at Ternopil Volodymyr Hnatiuk National Pedagogical University. Translator education has been significantly modernized through the integration of CAT tools, digital translation technologies, and AI-related content into both undergraduate and graduate curricula. Within the framework of the Erasmus+ DigiFLEd project, TNPU has focused on fostering digital literacy in translation studies. Students learn how to work with modern translation technologies, understand how AI works, and reflect on how it affects their profession. This institutional experience illustrates how university-level translation programs can adapt to the realities of the AI era while maintaining pedagogical integrity and quality standards. Incorporating interdisciplinary collaborations with

computational linguists, corpus developers, and AI ethicists can significantly enrich the training of future translators.

Despite remarkable progress, NMT still struggles with irony, metaphor, pragmatic implicature, and cultural references. This can lead to translations that look fluent but are incorrect or misleading. AI systems trained on massive data sets may reproduce or amplify biases related to gender, culture, or ideology. For example, gender-neutral pronouns in the source text may be transalted by male forms in the target text, as often happens when translating into Ukrainian, thereby reinforcing stereotypes. Translator awareness of such patterns is essential to maintain equity and fidelity. A core concern in AI-assisted translation is authorship and ownership. Who is the author of a post-edited text - machine, human, or both? Furthermore, when translation engines are trained on copyrighted materials, questions arise about fair use, data transparency, and the exploitation of intellectual property.

The integration of AI does not spell the end of human translation - it redefines and enriches it. Properly understood and responsibly applied, AI can enhance productivity and consistency, expand access to information in low-resource languages and support multilingual communication in crisis response, diplomacy, and education. The future of translation lies in a symbiotic relationship between human expertise and machine capabilities, where translators act as curators of meaning, nuance, and context in increasingly automated environments.

To conclude, we can say that artificial intelligence has become a transformative force in the field of translation. While its adoption brings undeniable benefits in speed and scale, it also challenges foundational concepts of authorship, quality, and responsibility. To succeed in this new landscape, translators must combine linguistic mastery with technological literacy and ethical awareness. For researchers, practitioners, and educators alike, the task ahead is to shape a translation ecosystem in which AI enhances human agency rather than replaces it, and where the integrity of cross-cultural communication is preserved, not compromised.