MACHINE TRANSLATION AND HUMAN TRANSLATION: A COMPARATIVE ANALYSIS

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Abstract

The development of artificial intelligence has significantly influenced translation practices, particularly through machine translation systems. This article compares machine translation and human translation in terms of accuracy, fluency, and cultural adaptation. Drawing on existing literature and comparative text analysis, the study demonstrates that while machine translation offers speed and consistency, human translation remains superior in handling nuance and context. The findings support a hybrid model combining both approaches.

Keywords: machine translation, human translation, AI, translation studies, linguistic accuracy

Annotatsiya

Sun'iy intellektning rivojlanishi tarjima amaliyotiga, xususan, mashina tarjima tizimlari orqali sezilarli ta'sir ko'rsatdi. Ushbu maqola mashina tarjimasi va inson tarjimasini aniqlik, ravonlik va madaniy moslashuv nuqtai nazaridan taqqoslaydi. Mavjud adabiyotlarga va qiyosiy matn tahliliga asoslanib, tadqiqot shuni ko'rsatadiki, mashina tarjimasi tezlik va izchillikni taklif qilsa-da, inson tarjimasi kichik farqlar va kontekst bilan ishlashda ustun bo'lib qolmoqda. Topilmalar ikkala yondashuvni birlashtirgan gibrid modelni qo'llab-quvvatlaydi.

Kalit so'zlar: mashina tarjimasi, inson tarjimasi, AI, tarjimashunoslik, lingvistik aniqlik

Translation is a fundamental tool for communication across languages and cultures. Historically, translation has been performed by humans, whose linguistic competence and cultural awareness allow them to convey meaning beyond words. According to Peter Newmark (1988), translation is not merely a linguistic activity but also a cultural one, requiring interpretation and adaptation.

In recent decades, machine translation (MT) has emerged as a powerful alternative. Systems such as Google Translate and DeepL use neural networks to produce increasingly fluent translations. As Philipp Koehn (2010) notes, statistical and neural approaches have dramatically improved translation quality.

Despite these advances, concerns remain about the limitations of MT, particularly in handling ambiguity, idiomatic expressions, and cultural context. This study aims to examine the differences between machine and human translation, using both literature and practical examples.

This research uses qualitative comparative analysis supported by existing theoretical literature. Key works in translation studies, such as those by Eugene Nida (2001), emphasize the importance of dynamic equivalence—translating meaning rather than words. Three types of texts were selected for analysis:

- A **technical text** (user manual excerpt)
- A **literary passage**
- A **colloquial dialogue**

Each text was translated using machine translation tools and compared with human translations. The evaluation criteria included accuracy, fluency, cultural adaptation, and consistency.

Technical Translation. In technical contexts, machine translation performed relatively well. For example, a sentence such as:

"Press the power button to restart the device."

was translated accurately by MT systems with minimal error. This aligns with findings by William John Hutchins and Harold L. Somers (1992), who argue that controlled and standardized language is easier for machines to process. Human translation, however, ensured clarity in cases where ambiguity might arise. For instance, the word "device" could be translated differently depending on context (phone, machine, or system).

Literary Translation. In literary texts, differences became more pronounced. Consider the metaphor:

"He has a heart of stone."

Machine translation often rendered this literally, which may not carry the intended emotional meaning in another language. Human translators, guided by principles described by Eugene Nida, adapted the phrase to an equivalent expression that conveys emotional coldness. Another example:

"Time is a thief."

Machine translation preserved the structure but failed to interpret the metaphor. A human translator might instead choose a culturally relevant equivalent, preserving the poetic effect.

Colloquial Language and Idioms. Machine translation struggled significantly with idiomatic expressions. For example:

"It's raining cats and dogs."

MT systems often translated this literally, resulting in confusion. Human translators replaced it with an equivalent phrase such as “It’s raining heavily.” Similarly, slang expressions like:

“That’s cool”

were sometimes translated as temperature-related statements rather than expressions of approval. These findings support Peter Newmark’s argument that meaning is context-dependent and cannot always be derived from individual words.

Consistency and Efficiency. Machine translation showed strong consistency in terminology across repeated phrases. This is particularly useful in technical documentation and large-scale translation projects. As noted by Philipp Koehn, MT systems excel in processing large datasets efficiently. However, human translators demonstrated flexibility, adjusting word choice depending on context, which improved readability but sometimes reduced consistency.

The findings confirm that machine translation and human translation have distinct advantages. Machine translation is highly efficient and accessible, making it ideal for quick communication and preliminary translations. Its ability to process large volumes of text aligns with modern demands for speed and scalability. However, human translation remains essential in contexts requiring interpretation, creativity, and cultural sensitivity. Literary and idiomatic texts highlight the limitations of MT, as machines lack the experiential and cultural knowledge described by Eugene Nida. Recent advances in neural machine translation, influenced by research in artificial intelligence by scholars such as Yoshua Bengio, have improved fluency and reduced errors. Nevertheless, these systems still rely on patterns rather than true understanding. A practical solution is the integration of both approaches. Machine translation can generate initial drafts, while human translators refine and adapt the text. This hybrid model combines efficiency with quality and is increasingly used in professional translation workflows.

Machine translation has transformed the field of translation by providing fast and consistent results. However, it cannot fully replace human translators, particularly in tasks requiring cultural awareness and creative interpretation. The most effective approach is a collaborative model in which machine translation supports, rather than replaces, human expertise.

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