TRANSLATING ENGLISH TEXTS THROUGH AI: LIMITATIONS AND ADVANTAGES

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Abstract. This article examines the evolving role of Artificial Intelligence (AI) in the translation of English written texts, highlighting both its transformative potential and its inherent limitations. Rapid advances in neural machine translation (NMT) and natural language processing (NLP) have made AI tools faster, more accessible, and increasingly accurate. Nevertheless, challenges persist in cultural interpretation, stylistic adaptation, and data security. Through a comprehensive analysis of the advantages and constraints of AI-assisted translation, this study argues that the most effective approach involves a collaborative model integrating both AI and human expertise. The findings underline the need for continued research into improving contextual understanding, ethical use, and multilingual inclusion in AI translation technologies.

Key words: Artificial Intelligence; neural machine translation; written translation; natural language processing; AI-assisted translation; cultural equivalence; contextual understanding; terminological consistency; data privacy; ethical issues; hybrid translation models; low-resource languages; machine learning; language technology; human–machine collaboration.

Аннотация. В данной статье рассматривается развивающаяся роль искусственного интеллекта (ИИ) в переводе английских письменных текстов, подчёркивая как его трансформационный потенциал, так и присущие ему ограничения. Быстрый прогресс в области нейронного машинного перевода (NMT) и обработки естественного языка (NLP) делает ИИ-инструменты более быстрыми, доступными и точными. Тем не менее остаются проблемы, связанные с интерпретацией культурного контекста, стилевой адаптацией и защитой данных. На основе комплексного анализа преимуществ и ограничений перевода с помощью ИИ исследование утверждает, что наиболее эффективным подходом является модель сотрудничества, объединяющая скорость ИИ и компетентность человека-переводчика. Полученные результаты подчёркивают необходимость дальнейших исследований, направленных на улучшение контекстуального понимания, этического применения и расширение многоязычной поддержки в технологиях ИИ-перевода.

Ключевые слова: искусственный интеллект; нейронный машинный перевод; письменный перевод; обработка естественного языка; перевод с помощью ИИ; культурная эквивалентность; контекстуальное понимание;

терминологическая последовательность; безопасность данных; этические вопросы; гибридные модели перевода; языки с ограниченными ресурсами; машинное обучение; языковые технологии; сотрудничество человека и машины.

Annotatsiya. Ushbu maqola ingliz tilidagi yozma matnlarni tarjima qilish jarayonida sun'iy intellektning (SI) o'zgarib borayotgan rolini tahlil qiladi hamda uning transformativ imkoniyatlari bilan bir qatorda mavjud cheklovlarini ham ochib beradi. Neyron mashinali tarjima (NMT) va tabiiy tilni qayta ishlash (NLP) bo'yicha jadal rivojlanish SI vositalarini yanada tezkor, qulay va aniq ishlashiga olib kelmoqda. Shunga qaramay, madaniy kontekstni talqin qilish, uslubiy moslashtirish va ma'lumotlar xavfsizligi kabi muammolar hali ham saqlanib qolmoqda. SI yordamida tarjimaning afzalliklari va cheklovlari bo'yicha kompleks tahlil asosida ushbu tadqiqot eng samarali yondashuv SI va inson tarjimonining integratsiyalashgan hamkorligidan iborat ekanini ta'kidlaydi. Tadqiqot natijalari kontekstni tushunishni chuqurlashtirish, SI dan axloqiy foydalanish va ko'p tillilikni qo'llab-quvvatlash bo'yicha izlanishlarni davom ettirish zarurligini ko'rsatadi.

Kalit so'zlar: sun'iy intellekt; neyron mashinali tarjima; yozma tarjima; tabiiy tilni qayta ishlash; SI-assisted tarjima; madaniy ekvivalentlik; kontekstual tushunish; terminologik izchillik; ma'lumotlar xavfsizligi; axloqiy masalalar; gibrid tarjima modellari; kam resursli tillar; mashinaviy o'rganish; til texnologiyalari; inson–mashina hamkorligi.

The rapid advancement of Artificial Intelligence (AI) has markedly transformed the domain of written translation, reshaping both its processes and its outcomes. AI-driven translation systems—most notably Google Translate, DeepL, and Microsoft Translator—have become indispensable linguistic tools, substantially reducing communicative barriers and facilitating swift, cost-effective interaction across diverse linguistic communities. Their integration into academic, professional, and everyday contexts has contributed to unprecedented levels of global connectivity, where access to multilingual content is no longer restricted to trained specialists.

Despite these substantial benefits, the adoption of AI in written translation remains a multifaceted phenomenon that warrants critical scrutiny. Although AI tools demonstrate impressive capabilities in terms of processing speed, lexical retrieval, and structural coherence, they still exhibit limitations in handling cultural subtleties, pragmatic meaning, idiomatic expressions, and genre-specific stylistic markers. Such constraints underscore the continuing need for human expertise in ensuring semantic accuracy and cultural appropriateness, particularly when translating complex or highly specialized texts.

Understanding the dual nature of AI's contribution—its strengths and its inherent shortcomings—is therefore crucial for optimizing its pedagogical, practical, and

technological applications. A nuanced evaluation enables users to employ AI strategically: leveraging its computational efficiency while compensating for contextual and stylistic gaps through human intervention. This article provides a comprehensive examination of AI's evolving role in written translation, assessing not only its operational mechanisms but also the broader linguistic, cultural, and ethical implications that accompany its use.

The use of AI-powered systems in written translation offers several notable advantages, the most prominent of which is their exceptional processing speed and operational efficiency. Contemporary neural machine translation technologies are capable of handling extensive textual data almost instantaneously, a feature of particular importance in sectors where timely communication is critical, such as international commerce, higher education, and governmental administration. Tasks that traditionally required substantial human labor—such as translating an entire digital platform into multiple target languages—can now be executed within minutes through automated systems.

In addition to rapid performance, AI facilitates translation at a significantly reduced cost. Whereas professional human translators often require considerable financial investment, especially for voluminous or technically demanding assignments, AI-based applications are generally free or offer budget-friendly subscription models. This affordability broadens access for a wide range of users, including students, small enterprises, and individuals who may lack the resources to engage expert translators.

Another key advantage lies in the accessibility and extensive multilingual support provided by AI translation technologies. These tools are readily available to anyone with internet connectivity and often accommodate dozens—sometimes even hundreds—of languages. Such linguistic diversity enables effective communication across culturally varied contexts and proves particularly valuable for global travelers, international organizations, and businesses seeking to expand their presence across multiple regions.

AI-based translation platforms demonstrate notable strengths in maintaining terminological consistency, particularly within specialized domains where the precise and uniform use of technical vocabulary is essential. In fields such as medicine, law, and engineering, even minor deviations in terminology may lead to significant misunderstandings. AI systems mitigate this risk by relying on predefined glossaries, terminology banks, and domain-specific linguistic databases, thereby ensuring standardized lexical choices throughout the entire document.

Another advantage is the continuous enhancement of AI performance through neural machine translation (NMT) architectures. These systems are designed to learn iteratively, refining their output based on user interaction, corrective feedback, and the integration of newly available linguistic data. As a result, their translation accuracy and

fluency improve over time, making them particularly efficient for recurrent textual patterns and standardized document types.

Despite these strengths, AI translation tools continue to face considerable challenges, the most prominent of which is their limited ability to recognize cultural and contextual subtleties. AI frequently misinterprets idiomatic expressions, culturally bound metaphors, and region-specific linguistic varieties. For instance, expressions such as "break the ice" or "a piece of cake" may be rendered literally, thereby distorting the intended meaning. Human translators, by contrast, possess the intuitive cultural competence required to reinterpret these expressions appropriately within the target culture.

In addition, although significant progress has been made in improving grammatical and syntactic accuracy, AI systems still struggle with complex sentence structures, ambiguous formulations, and texts that permit multiple interpretations. Such errors are particularly consequential in academic, legal, or formal communication, where precision and clarity are essential.

AI technologies also demonstrate limited capacity in translating creative or emotionally nuanced content. Literary works, poetic texts, and persuasive marketing materials rely heavily on stylistic devices, emotional resonance, and cultural symbolism—elements that current AI models are not fully capable of capturing. Consequently, the aesthetic or emotive impact of such texts is often reduced or lost in machine-generated translations.

Finally, the effectiveness of AI translation is inherently dependent on the training data from which the models learn. For widely spoken languages, extensive datasets enable relatively high-quality translations; however, for less commonly used languages or dialects with limited digital corpora, AI performance declines substantially. This data dependency constrains the reliability and accuracy of AI systems when dealing with underrepresented linguistic communities.

The integration of AI-based translation platforms introduces notable challenges related to data privacy and information security. Submitting confidential or sensitive documents to online translation systems carries inherent risks, as many of these tools process and temporarily store user data on external servers to enhance algorithmic performance. Such data-handling practices increase the likelihood of unauthorized access, data leakage, or privacy breaches, thereby raising serious concerns for institutions and individuals working with classified or proprietary information.

The deployment of AI in professional translation settings also raises important ethical and legal questions. Exclusive reliance on machine-generated translations—particularly in high-stakes contexts such as legal documentation, contractual agreements, or policy texts—can result in misinterpretations with potentially severe legal consequences. Moreover, the use of AI-generated content in commercial or

academic environments generates additional issues regarding authorship, accountability, and intellectual property rights. These concerns indicate the necessity of maintaining human oversight to ensure accuracy, responsibility, and compliance with regulatory standards.

The future trajectory of AI in the field of translation appears highly promising, driven by rapid developments in neural machine translation (NMT) and natural language processing (NLP). These emerging technologies are continuously enhancing the precision, adaptability, and contextual awareness of automated translation systems. Increasing attention is also being devoted to hybrid translation models—commonly referred to as machine-assisted human translation—which integrate the computational speed of AI with the interpretative competence and cultural literacy of human translators. Such collaborative frameworks are becoming an effective solution for achieving both efficiency and semantic accuracy.

Furthermore, AI is anticipated to play an increasingly significant role in supporting underrepresented and low-resource languages. As investments grow in the creation of digital corpora, linguistic datasets, and advanced algorithms, speakers of less commonly used languages stand to benefit from improved translation quality and greater technological inclusion. This development contributes to broader efforts aimed at linguistic preservation and global communication equity.

While AI has undoubtedly revolutionized written translation through its unparalleled speed, economic efficiency, and broad accessibility, its current limitations necessitate cautious implementation. Challenges such as insufficient cultural sensitivity, difficulties with intricate or stylistically rich texts, and vulnerabilities in data privacy reveal that machine translation cannot fully substitute human expertise in professional contexts. Consequently, the most viable future model is one in which AI and human translators operate synergistically, each compensating for the other's limitations.

By systematically addressing existing shortcomings—particularly in cultural competence, contextual interpretation, and ethical data handling—AI has the potential to evolve into an even more powerful tool for facilitating cross-linguistic communication. Ultimately, the future of translation will depend on a balanced integration of technological innovation and human judgment, fostering more effective and culturally informed interactions across languages.

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