

## CAN AI REPLACE PROFESSIONAL ENGLISH TRANSLATORS?

Vinnitsia National Technical University

### *Анотація*

*У цій роботі досліджується можливість повної заміни професійних перекладачів штучним інтелектом. Розглянуто сучасні досягнення у сфері машинного перекладу, зокрема нейронні моделі, що використовують глибоке навчання. Проаналізовано переваги машинного перекладу, такі як швидкість, ефективність та економічність, а також його обмеження, пов'язані з контекстом, культурними нюансами та спеціалізованими галузями. Робота підкреслює важливість людського втручання у процес перекладу та розглядає гібридний підхід як найбільш ефективний метод забезпечення якості перекладу.*

**Ключові слова:** машинний переклад, штучний інтелект, професійний переклад, нейронний машинний переклад, культурні нюанси.

### **Abstract**

*This paper explores the possibility of fully replacing professional translators with artificial intelligence. It examines recent advancements in machine translation, particularly neural models utilizing deep learning. The advantages of machine translation, such as speed, efficiency, and cost-effectiveness, are analyzed alongside its limitations in handling context, cultural nuances, and specialized fields. The study emphasizes the importance of human involvement in translation and considers a hybrid approach as the most effective method to ensure translation quality.*

**Keywords:** machine translation, artificial intelligence, professional translation, neural machine translation, cultural nuances.

The rise of artificial intelligence (AI) has significantly influenced various fields, including translation. Machine translation (MT) systems such as Google Translate and DeepL have demonstrated impressive advancements in speed and accuracy. However, despite technological progress, human translators remain essential due to their ability to understand context, cultural nuances, and complex linguistic structures. This paper explores the advantages and limitations of machine translation compared to human translation, analyzing whether AI can fully replace professional translators.

Machine translation has evolved from simple rule-based systems to sophisticated neural machine translation (NMT) models that employ deep learning techniques. These advancements have improved translation quality, making AI-driven tools highly useful for quick and general translations [1]. Nevertheless, language is more than just a series of words; it carries cultural, contextual, and emotional depth that machines still struggle to grasp.

Machine translation offers several advantages, including speed and efficiency, as it can process vast amounts of text within seconds, making it ideal for translating large documents and websites in real time [2]. It is also cost-effective, reducing the expense of hiring professional translators, which benefits businesses and individuals requiring bulk translations. Furthermore, AI-powered translation models improve over time as they learn from vast datasets, enhancing their accuracy and fluency.

Despite these advantages, machine translation has limitations. AI struggles with context and nuances, particularly when dealing with idioms, metaphors, and ambiguous sentences that require deeper understanding [3]. It also lacks cultural sensitivity, often failing to adapt texts to cultural norms, which can lead to misinterpretations. Additionally, specialized fields such as technical, medical, and legal translations demand domain-specific expertise that AI models lack, making human translators indispensable in such areas.

Human translators bring creativity, cultural awareness, and the ability to convey tone and intent accurately. They ensure that translations are not only correct but also appropriate for the target audience. Additionally, human translators can adapt content dynamically, something that AI systems still struggle to achieve.

While machine translation continues to improve, it is unlikely to completely replace human translators in the near future. Instead, AI serves as a complementary tool, enhancing productivity and assisting human

professionals in their work. The most effective approach is a hybrid model where AI performs initial translations, and human translators refine and contextualize the final output [4].

AI-driven machine translation has revolutionized the translation industry, offering rapid and cost-effective solutions. However, human translators remain crucial for maintaining accuracy, context, and cultural relevance. Rather than replacing professionals, AI serves as an assistive tool, making translation more efficient while ensuring quality through human oversight.

#### REFERENCES

1. Hutchins, W. J., & Somers, H. L. An Introduction to Machine Translation / W. John Hutchins, Harold L. Somers — London: Academic Press, 1992 — p. 320.
2. Koehn, P. Statistical Machine Translation / Philipp Koehn — Cambridge: Cambridge University Press, 2010 — p. 500.
3. Pym, A. Exploring Translation Theories / Anthony Pym — London: Routledge, 2010 — p. 220.
4. TAUS. Translation Automation User Society. [Електронний ресурс] — Режим доступу: <https://www.taus.net> (дата звернення: 20.03.2025).

**Самсонюк Олександр Васильович** — студент факультету інформаційних технологій та комп'ютерної інженерії, Вінницький національний технічний університет, м. Вінниця, e-mail: [oleksandrsamsonuk907@gmail.com](mailto:oleksandrsamsonuk907@gmail.com)

Науковий керівник: **Габріїчук Людмила Едуардівна** – викладач англійської мови, кафедра іноземних мов, Вінницький національний технічний університет, м. Вінниця, e-mail: [ludmilahabrichuk@gmail.com](mailto:ludmilahabrichuk@gmail.com)

**Samsoniuk Oleksandr V.** — student of the Faculty of Information Technology and Computer Engineering, Vinnytsia National Technical University, Vinnytsia, e-mail: [oleksandrsamsonuk907@gmail.com](mailto:oleksandrsamsonuk907@gmail.com)

Scientific Supervisor: **Ludmila E. Habriichuk** – teacher of English, Foreign Languages Department, Vinnytsia National Technical University, Vinnytsia, e-mail: [ludmilahabrichuk@gmail.com](mailto:ludmilahabrichuk@gmail.com)