



MIRZO ULUG'BEK NOMIDAGI
O'ZBEKISTON MILLIY UNIVERSITETI
JIZZAX FILIALI



**KOMPYUTER IMLARI VA
MUHANDISLIK TEXNOLOGIYALARI
XALQARO ILMIY-TEXNIK
ANJUMAN MATERIALLARI
TO'PLAMI
2-QISM**



26-27-SENTABR
2025-YIL



**O'ZBEKISTON RESPUBLIKASI OLIY TA'LIM, FAN VA
INNOVATSIYALAR VAZIRLIGI**

**MIRZO ULUG'BEK NOMIDAGI O'ZBEKISTON MILLIY
UNIVERSITETINING JIZZAX FILIALI**



**KOMPYUTER IMLARI VA MUHANDISLIK
TEXNOLOGIYALARI**

mavzusidagi Xalqaro ilmiy-texnik anjuman materiallari to'plami
(2025-yil 26-27-sentabr)

2-QISM

JIZZAX-2025

Kompyuter ilmlari va muhandislik texnologiyalari. Xalqaro ilmiy-texnik anjuman materiallari to‘plami – Jizzax: O‘zMU Jizzax filiali, 2025-yil 26-27-sentabr. 368-bet.

Xalqaro miqyosidagi ilmiy-texnik anjuman materiallarida zamonaviy kompyuter ilmlari va muhandislik texnologiyalari sohasidagi innovatsion tadqiqotlar aks etgan.

Globallashuv sharoitida davlatimizni yanada barqaror va jadal sur’atlar bilan rivojlantirish bo‘yicha amalga oshirilayotgan islohotlar samarasini yaxshilash sohasidagi ilmiy-tadqiqot ishlariga alohida e’tibor qaratilgan. Zero iqtisodiyotning, ijtimoiy sohalarni qamrab olgan modernizatsiya jarayonlari, hayotning barcha sohalarini liberallashtirishni talab qilmoqda.

Ushbu ilmiy ma’ruza tezislari to‘plamida mamlakatimiz va xorijlik turli yo‘nalishlarda faoliyat olib borayotgan mutaxassislar, olimlar, professor-o‘qituvchilar, ilmiy tadqiqot institutlari va markazlarining ilmiy xodimlari, tadqiqotchilar, magistr va talabalarning ilmiy-tadqiqot ishlari natijalari mujassamlashgan.

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Mazkur to‘plamga kiritilgan ma’ruza tezislarning mazmuni, undagi statistik ma’lumotlar va me’yoriy hujjatlarning to‘g‘riliqi hamda tanqidiy fikr-mulohazalar, keltirilgan takliflarga mualliflarning o‘zlari mas’uldirlar.

NEW APPROACHES IN TRANSLATION

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Annotation: Translation is an age-old practice with roots stretching back to ancient civilizations. Historically, it has been a vital tool for cross-cultural communication, diplomacy, and the spread of knowledge. However, with the advent of technology and the increasing pace of globalization, the field of translation is undergoing a significant transformation. New approaches are redefining how translation is performed, impacting both the methodology and the role of human translators. This article explores the latest advancements in translation, focusing on neural machine translation (NMT), the integration of artificial intelligence (AI) and machine learning (ML), the role of post-editing, and the evolving function of human translators.

Keywords: translation, NMT, model, method, methodology, artificial intelligence.

Neural machine translation (NMT) represents a revolutionary shift from traditional statistical and rule-based translation methods. NMT leverages deep learning, specifically neural networks, to model language translation. Unlike its predecessors, which relied heavily on phrase-based statistical models, NMT processes entire sentences or even larger contexts, enabling it to produce translations that are more fluent and coherent.

NMT systems use neural networks, particularly sequence-to-sequence models, to convert input text into target language output. The process typically involves two main components: an encoder and a decoder. The encoder processes the source text and transforms it into a fixed-length vector, while the decoder generates the translation from this vector. Advanced NMT models employ attention mechanisms that allow the model to focus on different parts of the input sequence as it generates the output, improving context understanding and translation accuracy.

Advantages of neural machine translation (NMT):

- NMT systems excel in understanding and preserving the context of entire sentences, leading to translations that are more contextually appropriate and fluent.
- By learning from vast bilingual corpora, NMT generates translations that sound more natural and human-like compared to earlier methods.
- NMT models can be adapted to specific domains or languages through fine-tuning, making them versatile tools for specialized translation tasks.

Challenges of NMT:

- NMT models require extensive parallel corpora for training. This data may be scarce for less commonly spoken languages or specialized fields, impacting the quality of translations.

- Training and deploying NMT models demands significant computational power, which can be a barrier for smaller organizations or individuals.

- Despite their advancements, NMT systems can still struggle with ambiguous language and nuanced contexts that were not well-represented in the training data.

The integration of artificial intelligence (AI) and machine learning (ML) is revolutionizing the field of translation. These technologies enhance the capabilities of translation tools by enabling them to learn from vast amounts of data, adapt to different contexts, and continuously improve their performance.

Key Innovations:

- Automatic speech recognition (ASR). ASR systems convert spoken language into text, facilitating real-time translation in settings such as international conferences and live broadcasts. This technology enables seamless communication across language barriers by transcribing and translating spoken content.

- Language models. Advanced AI-driven language models, such as OpenAI's GPT series, have shown remarkable proficiency in generating coherent and contextually relevant text. These models assist in various translation tasks, from generating translations to providing contextually appropriate suggestions and corrections.

- Cross-lingual transfer. AI and ML enable cross-lingual transfer, where knowledge from one language is applied to improve translation capabilities in other languages. This approach is particularly beneficial for low-resource languages, leveraging data from related languages to enhance translation quality.

Post-editing of machine translations. Post-editing involves human translators reviewing and correcting machine-generated translations. This process aims to combine the efficiency of machine translation with the accuracy and nuance provided by human expertise. Post-editing can vary from light editing, where minor corrections are made, to full editing, which involves extensive revision of the machine-generated text.

Benefits of post-editing:

- Enhanced efficiency. Post-editing allows translators to work more efficiently by leveraging machine-generated drafts. This approach speeds up the translation process while maintaining high quality.

- Quality assurance. Human post-editors can address errors and inconsistencies that machine translation systems might miss, ensuring that the final output meets professional standards.

- Cost-effectiveness. By reducing the amount of manual translation work required, post-editing can lower overall translation costs, making high-quality translation services more accessible.

Challenges of post-editing:

- Skill requirements. Effective post-editing requires translators to be skilled in both the source and target languages, as well as proficient in using CAT tools and understanding machine translation outputs.

- Consistency. Ensuring consistency in translations across different post-editors can be challenging, particularly when dealing with large-scale projects or multiple languages.

Collaboration with technology. Despite the advancements in machine translation and AI, human translators remain indispensable in the translation process. Their role is evolving to include collaboration with technology, where they leverage machine translation tools to enhance their efficiency while applying their expertise to ensure accuracy and cultural relevance. The rise of technology in translation has led to the emergence of new skill sets for translators, including:

- Proficiency in CAT tools. Translators must be adept at using Computer-Assisted Translation (CAT) tools, which help manage translation memories, terminology databases, and other resources.
- Understanding of AI and ML. Familiarity with AI and ML technologies enables translators to effectively utilize machine translation systems and post-editing tools.
- Cultural and domain expertise. Translators need to maintain their expertise in cultural nuances and specialized domains to provide high-quality translations that meet client needs.

To stay competitive in a rapidly evolving field, translators must engage in continuous professional development. This includes:

- Translators should keep abreast of the latest developments in translation technology and AI to effectively incorporate these tools into their workflow.
- Developing strong digital skills is essential for navigating new translation tools and platforms.
- Gaining expertise in specific domains or industries can enhance a translator's value and adaptability in a technology-driven landscape.

The adoption of new translation technologies has profound economic implications. Automated translation systems can reduce costs and increase accessibility, making translation services more affordable and widely available. However, this shift also raises questions about the value and compensation of human translators. Maintaining high standards of translation quality is crucial as machine translation and AI-driven tools become more prevalent. The industry must develop best practices and frameworks for integrating technology while ensuring that translations remain accurate and culturally appropriate. Looking ahead, the future of translation is likely to involve a continued blend of human expertise and technological innovation.

The field of translation is experiencing a transformative shift as new technologies and methodologies reshape how translations are performed. Neural machine translation, artificial intelligence, and machine learning are driving advancements that enhance translation efficiency and accuracy. At the same time, the role of human translators is evolving, requiring new skills and a collaborative approach with technology.

As the translation industry navigates this dynamic landscape, it is crucial to balance technological innovation with a commitment to quality, ethics, and cultural sensitivity. By embracing new approaches while upholding high standards, the

translation industry can continue to bridge communication gaps and foster global understanding in an increasingly interconnected world.

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