

Comparative Analysis of Online Translators in the Machine Translation System

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Abstract: *The article presents a comparative analysis of various online translators in the machine translation system. The author of the study focused on finding out the effectiveness and accuracy of the translation, identifying the strengths and weaknesses of the three most common online translators: Google Translate, DeepL and Microsoft Translator. The article begins with an overview of current trends in the field of machine translation and the need for online translations based on this context. The research methodology is selected in the article, in particular, the selection of individual online translators for comparison and the criteria for evaluating their work. The researcher analyzes the quality of translations for various types of texts, including common phrases, technical terms, complex sentences, etc. Attention is also paid to different language pairs and ensuring the availability of rarer languages in electronic translation. The article reveals such aspects as accuracy of translation, speed of work, recognition of context and idiomatic expressions, availability of additional functions and capabilities that ensure better translation quality. The author thoroughly highlights the strengths and weaknesses of each system, provides clear information about the use of integrations, available functions and additional capabilities of each translator. In the final part of the article, the author provides conclusions and recommendations regarding the use of online translators in the machine translation system. The research highlights that each electronic translator has its own advantages and limitations, and the choice depends on the specific needs of the user. In addition, the author emphasizes the need for constant updating and improvement of online translators to increase their accuracy and efficiency. This comparative analysis will help simplify the selection of the optimal translation software for users who require high-quality machine translation for their professional activities or everyday needs.*

Keywords: *online translator; machine translation; translation activity; information and communication technologies.*

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Introduction

The problem statement: With the growth of globalization in the modern world, people increasingly need means of communication in different languages. Online translators play a very important role in translation activities. They help translators quickly translate texts from one language to another, providing wide access to translation into different languages of the world. They are also convenient because they allow you to get an instant translation without having to visit the library or scan long dictionaries. They work on the basis of artificial intelligence, which learns on a large amount of text data and machine learning algorithms. This allows them to recognize language structures, grammar and vocabulary for accurate translation (Filipova et al., 2022). Machine translation has become an integral part of the modern world, providing a fast and convenient way to translate texts between different languages.

Modern online translators are a necessary tool in the training of future translators and philologists at a higher educational institution. The use of various online translation resources in the educational process helps students acquire specific professional skills and apply appropriate translation strategies. They allow future specialists to analyze different approaches to translation, help improve language and translation skills. This type of special translation software makes it possible to compare your own translation with a machine translation, to highlight special terminology and to select the most accurate translation equivalents of polysemous words in the text. Online translators can help students learn the authentic language by reading news, literary texts, etc.

With the rise in popularity of online translators such as Google Translate, DeepL, and Microsoft Translator, there is a need to carefully benchmark their effectiveness and quality. Research into the functionality of online translators is an important contribution to the field of machine translation. In particular, this type of activity is used by professional translators, specialists in international relations, students and researchers engaged in the study and improvement of machine translation systems. It will also be useful for a wide range of users who regularly use online translators in their daily activities.

Research in the field of comparative analysis of online translators in the machine translation system is an active and extensive field. A number of Ukrainian and foreign researchers studied the quality and efficiency of various translators.

Carolina Scarton in her work «Quality Estimation for Machine Translation» (Specia et al., 2018) focused on evaluating the quality of translation with an orientation to a reference standard, which allows more objectively determining the quality of translation between different systems.

Marco Turchi in the study «Comparative experiments using supervised learning and machine translation for multilingual sentiment analysis» (Balahur & Turchi, 2014) investigated the quality of translation on real data taken from various sources, such as news sites and Internet resources. This helped to find out how machine translation systems cope with real conditions of use.

Declan Groves and his team in their works (Shterionov et al., 2020) studied online translators from the point of view of education and professional development of translators, in particular in the context of training and training of specialists in the field of translation.

Many foreign and Ukrainian universities and scientific institutes study and evaluate the functions of online translators in the context of machine translation. The Massachusetts Institute of Technology has a language processing and machine translation department that conducts research on improving the functions of online translators and developing new technologies in this area. Carnegie Mellon University has a Center for Machine Translation and Applied Research, where researchers study the functions of online translators and develop new methods to improve their performance (Zhang et al., 2020). Natural language processing and machine translation researchers work at Stanford University, studying the functions and algorithms of online translators (Wang et al., 2022). Within the framework of the European Center for Machine Translation, researchers from universities and scientific centers from all over the world are united to share knowledge and discoveries in the field of machine translation and its functions. The International Association of Computational Linguistics, which unites researchers in the field of computational linguistics and machine translation, regularly holds conferences and publishes articles with research results (Haque et al., 2020).

In Ukraine, there are also several scientific institutions and universities that are actively engaged in research in the field of machine translation and the functions of online translators. The Institute for Applied Systems Analytics specializes in research in language processing and machine translation, including online translator functions. He is based in Kyiv and is known in the field of applied linguistics. National University «Kyiv-Mohyla Academy» also has research groups engaged in developments in the field of computer linguistics and machine translation. The Institute of Machine Science and Cybernetics of the National Academy of Sciences of Ukraine is

engaged in research in the field of machine learning and natural language processing, which includes studying the functions of online translators.

Materials and methods

The aim of the study is to study and comparative analysis of various online translators working on the basis of machine translation technologies.

The comparative analysis of online translators was conducted within the framework of studying the discipline «Information technologies in translation activity» at the Poltava State Agrarian University. The discipline «Information technologies in translation activity» is an important component of training in the field of translation and linguistics. Comparative analysis of online translators and systematization of their functions helps students better understand the strengths and weaknesses of various electronic translation systems, their capabilities and limitations. Also, such research can help students develop critical thinking and analytical skills.

Poltava State Agrarian University has a good potential for conducting research in the field of machine translation and information technologies in translation activities, in particular in the context of agricultural topics, which are the main subject of the university's research. And such research can be useful both for the university itself and for the field of translation as a whole. In order to obtain quality characteristics of online translators Google Translate, DeepL and Microsoft Translator and their comparison, the main topics of the course «Information technologies in translation activity», including «The role of information technologies in translation activity», «Specifics of translation of special texts», «Mobile translation applications» were taken. Within these topics the work of each of the translators was checked according to the considered functions and criteria.

The main research materials were:

- online translators (Google Translate, DeepL, Microsoft Translator and other popular platforms);
- texts for translation into different languages and from different fields: technical documentation (Ford Focus Car Manual); scientific articles (Quantum Computing: From Basic Concepts to Recent Advances); fiction (Game of Thrones by George R.R. Martin); official documents (Declaration of Human Rights); and web pages on various topics;
- standard metrics for assessing translation quality: BLEU (Bilingual Evaluation Understudy); METEOR (Metric for Evaluation of Translation with Explicit Ordering); TER (Translation Edit Rate); NIST (National Institute of Standards and Technology); ChrF (Character-F measure) and translation quality assessment by professional translators).

We used a range of methods in our research:

- Translation quality analysis. We compared the translations of the text of *The Silence of the Lambs* using Google Translate, DeepL, and Microsoft Translator, and then evaluated the quality of each translation using the BLEU and METEOR metrics.

- Linguistic analysis. We analysed the influence of vocabulary on translation quality by analysing translations of professional technical literature from different language groups.

- Experimental evaluation. In the course of the study, we invited professional translators and students of translation specialities to translate and evaluate a text from a public source using various platforms, including translating an article from BBC News using Google Translate, DeepL, and Microsoft Translator.

- Statistical analysis. Statistical data on the time required to translate a certain amount of text using different platforms was collected and analysed, and the time required to translate an article from *The New York Times* was compared.

Results and discussion

In 2022, Google Translate announced the ability to translate between more than 100 languages, including exotic and rare languages. This translation app currently has over 500 million active monthly users. In turn, DeepL offers translations between 26 languages, including all major European languages. According to the studies of scientists (for example, the article «Evaluation of Neural Machine Translation Systems in Real-Life Conditions» by Marco Turchi) and reviews of professional translators in social networks and special professional forums, DeepL has a very high quality of translation of special terminology, compared to other electronic resources. Microsoft Translator supports translations between more than 70 languages. This translator is integrated into many Microsoft products, such as Office and Skype, making it convenient for users of these products. Microsoft Translator has a well-developed support system for developers, which allows it to be used in various applications and services. Therefore, Google Translate, DeepL and Microsoft Translator are three of the most popular online translators among professional and beginner translators. Each of them has its own characteristics and advantages. In order to achieve high-quality application of information and communication technologies in the translation work of modern specialists, we will conduct a thorough analysis of each of the online translators and choose the most appropriate of them in the course of machine translation (Saffari et al., 2017). The

application of each of the investigated online translators and their influence on improving the quality of the educational process was checked on specific translation tasks during the study of the course «Information technologies in translation activity» in the educational process of students of higher education in the field of Philology of the Poltava State Agrarian University.

Google Translate is one of the most popular online translators today. Developed by Google, it provides the ability to quickly translate texts and speech between many languages of the world. It provides the ability to automatically translate texts, phrases, or even entire web pages between different languages. Google Translate uses artificial intelligence and machine learning to improve translation quality. The online interface allows users to conveniently enter text, select source and target languages, and then receive a translation. In addition, Google Translate is also available in the form of mobile applications for convenient use on smartphones and tablets. The Google Translate project was launched in 2006, and since then numerous updates and improvements have been implemented to ensure quality translation between different languages. It uses artificial intelligence and machine learning to provide translations (Chen, 2020). The system learns from large amounts of text data, which helps it better understand language structure, grammar, and vocabulary. It is also driven by user input and continuously improved through careful analysis of user input and machine learning. This online translator is systematically used in the educational environment of the Poltava State Agrarian University within the scope of studying the discipline «Information technologies in translation» and in working with special texts (Fig. 1).

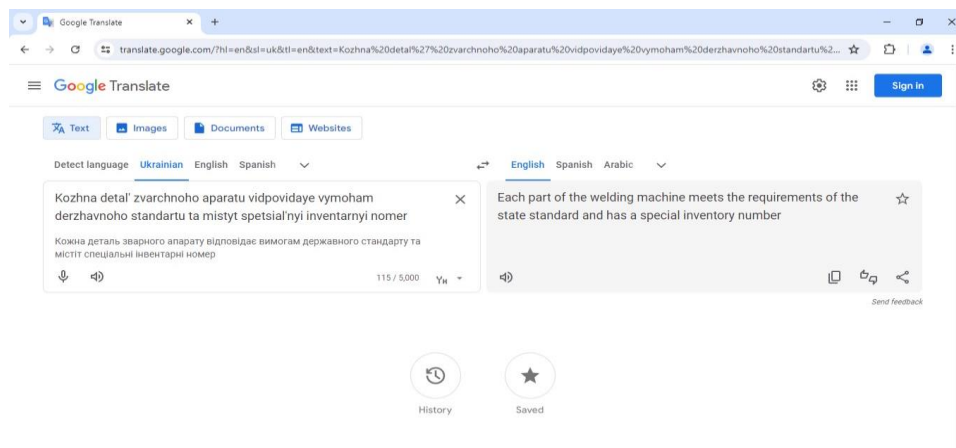


Fig. 1. Screenshot of the Google Translate online translation application for technical texts in the course «Information technologies in translation activities»

DeepL is an online translator that uses artificial intelligence to provide fast and high-quality translation of texts. It was launched in 2017 and quickly gained popularity due to its high accuracy and ability to convey the content of the original text. This electronic translation resource uses deep learning neural networks to analyze the syntax and language of the source text. The translation system is based on a large amount of corpus data, including published translations and users' DeepL translations (Roiss & Zimmermann González, 2021). This allows the system to correct errors and provide more accurate and natural translations. Within the discipline «Information technologies in translation activity», the teacher and students of the Philology specialty use this online application to work with special terminology (Fig. 2).

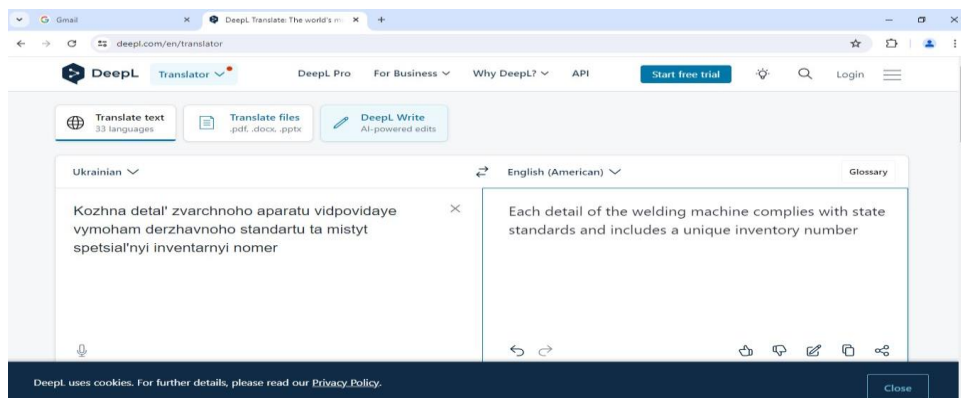


Fig. 2. An example of the online service for DeepL translators for the translation of technical terms in the discipline «Information technologies in translation activity»

Microsoft Translator is an online translator developed by Microsoft. It is a powerful machine translation tool that provides the ability to translate texts, web pages, documents and even speech messages in real time. Microsoft Translator uses artificial intelligence to automatically translate between more than 70 languages, including the world's most popular languages (Koehn & Knowles, 2017). It can be used both through the web version on the official Microsoft Translator website and through special mobile applications for iOS and Android platforms. The main features of Microsoft Translator include translation of text, audio and video files, cross-platform access, the ability to download dictionaries of terms and meanings, and the ability to translate messages in real-time while having a conversation with another person, even if you do not share a common language (Fitria, 2021). Microsoft Translator can also be easily integrated into other

applications or services using its open API. This allows developers to implement machine translation features into their own products and services. Overall, Microsoft Translator is a powerful instant language translation tool that provides convenient and accurate translations for users around the world (Fig. 3).

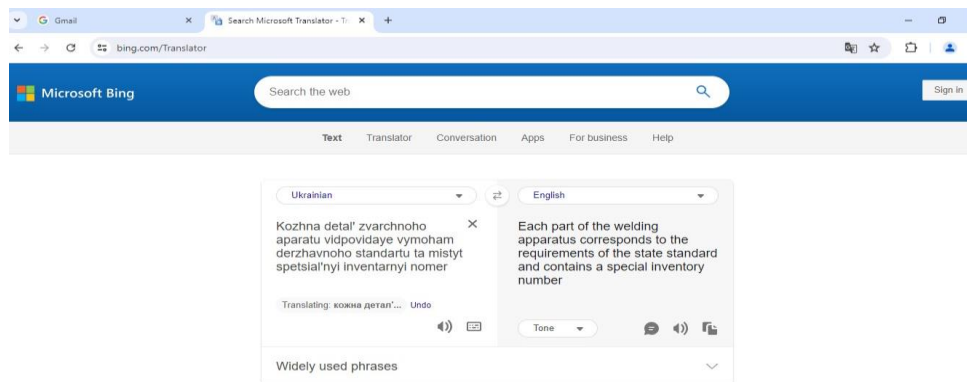


Fig. 3. Interface of the online transfer of Microsoft Translator

The comparative analysis of online translators was conducted within the framework of studying the discipline «Information technologies in translation activity» at the Poltava State Agrarian University. The discipline «Information technologies in translation activity» is an important component of training in the field of translation and linguistics. Comparative analysis of online translators and systematization of their functions helps students better understand the strengths and weaknesses of various electronic translation systems, their capabilities and limitations. Also, such research can help students develop critical thinking and analytical skills.

Poltava State Agrarian University has a good potential for conducting research in the field of machine translation and information technologies in translation activities, in particular in the context of agricultural topics, which are the main subject of the university's research. And such research can be useful both for the university itself and for the field of translation as a whole. In order to obtain quality characteristics of online translators Google Translate, DeepL and Microsoft Translator and their comparison, the main topics of the course «Information technologies in translation activity», including «The role of information technologies in translation activity», «Specifics of translation of special texts», «Mobile translation applications» were taken. Within these topics the work of each of

the translators was checked according to the considered functions and criteria.

We have selected the most appropriate criteria and indicators of the quality of using online translators in translation activities.

Let's consider these online translators according to different functional criteria.

1. Translation quality:

Google Translate has a large number of translation models and uses machine learning to improve translations. It can provide reasonably accurate translations for general texts, but may not correctly reflect the translation of specialized terminology or complex phrases.

DeepL is based on deep learning and is known for its high quality translations. It often provides more accurate and natural translations, especially for European languages.

Microsoft Translator also uses machine learning and provides sufficient translation quality for many languages. It may be less accurate than Google Translate or DeepL, but it is still capable of general translations.

To compare this indicator, we took the topic «Translation of special texts» of the discipline «Information technologies in translation activity» and the language pair English/German and French/English

Example 1: Medical text (English to German)

English text: «The patient is presenting with symptoms of acute respiratory distress syndrome and is in need of immediate medical attention»

Translation results:

Google Translate: «Der Patient presents symptoms of acute breathlessness syndromes and requires immediate medical attention»

DeepL: «Der Patient zeigt Symptome eines akuten Atemnotsyndroms und neegt sofortige medizinische Aufmerksamkeit»

Microsoft Translator: «Der Patient presents symptoms of acute breathlessness syndromes and needs sofortige medizinische Attention»

In this example, Google Translate and DeepL provide an almost identical translation that matches the specific terminological context, while Microsoft Translator also provides the correct translation, but with slightly different verbs.

Example 2: Legal text (French to English)

French text: «La loi stipule que les parties doivent se conformer à toutes les décisions rendues par l'arbitre»

Translation results:

Google Translate: «The law states that the parties must comply with all decisions rendered by the arbitrator»

DeepL: «The law states that the parties must comply with all decisions rendered by the arbitrator»

Microsoft Translator: «The law states that the parties must comply with all decisions rendered by the arbitrator»

In this example, all three translators provide an accurate translation with no significant differences.

These examples used in the training of future philologists-translators of the Poltava State Agrarian University with the topic «Translation of special texts» show that the translation quality can be similar between Google Translate, DeepL and Microsoft Translator for special texts, especially if the texts have the correct syntax and lexicon. However, in real translation settings, there may be situations where one translator may show better quality than others, depending on the specific text and language pairs. Therefore, we recommend checking the quality of the translation on several different services, checking the translation for correctness and sound in the context, and also using additional resources if the translation is important and critical.

2. Available languages.

Google Translate supports more than 100 languages, including popular languages of the world.

DeepL works with translation from English, German, French, Spanish, Italian, Dutch, Polish, Portuguese and Ukrainian to and from other languages.

Microsoft Translator supports more than 70 languages, including popular languages of the world. It also offers translations for some less common languages, but there may be fewer language options compared to Google Translate and DeepL.

Studying the topic «Translation of special terminology» from the discipline «Information technologies in translation activity», we came to the conclusion that working with it can be difficult for online translators due to the high level of specificity and contextuality of the terms. The number of available languages of the online translator allows you to comprehensively search for a special term and choose the most appropriate corresponding one.

Example of terminology: «DNA sequencing»

Google Translate:

From English to Ukrainian: «Sekvenuvannya DNK»

From German to Ukrainian: «Poslidovne vyznachennia DNK»

DeepL:

From English to Ukrainian: «Sekvenuvannya DNK»

From German to Ukrainian: «Sekvenuvannya DNK»

Microsoft Translator:

From English to Ukrainian: «Sekvenuvannya DNK»

From German to Ukrainian: «Sekvenuvannya DNK»

In this example, all three translation systems (Google Translate, DeepL and Microsoft Translator) correctly translated the term «DNA Sequencing» from English to Ukrainian and from German to Ukrainian as «DNA Sequencing». It is obvious that in this case all systems correctly recognized the specialized term and performed the correct translation.

It is important to note that the translation results of special terminology may vary depending on the context and complexity of the terms. Therefore, for critical documents and important projects, it is recommended to contact professional human translators or specialized translation agencies.

3. Interface and functionality.

Google Translate has an intuitive and easy-to-use interface. It provides additional features such as voice-to-speech recognition, photo translations, and the ability to insert text from web pages for translation.

DeepL also has a user-friendly interface where you can paste or type text to be translated. It doesn't have as many additional features as Google Translate, but it focuses on providing high-quality translations.

Microsoft Translator has a simple interface similar to other translators. It also provides some additional features such as speech recognition and the ability to download additional plugins for integration with other applications.

The use of the interface and functionality of Google Translate, DeepL and Microsoft Translator during the presentation to students of the topic «The role of information technology in translation activity» was very useful for demonstrating the capabilities and limitations of these online translators. The teacher showed the students how the same phrase or sentence is translated by different online translators. Students can compare the quality of the translation, identify the difference in accuracy and style. The teacher provided various types of tasks to compare the interface and functionality of applications.

Task 1: Translate the English sentence «The quick brown fox jumps over the lazy dog» into Ukrainian.

Translation:

Google Translate: «Shvydka korychneva lytsytsya strybaie cherez ledachoho sobaku.»

DeepL: «Shvydka korychneva lytsytsya perestrybuye ledachogo sobaku»

Microsoft Translator: «Shvydka korychneva lysytsia strybaie cherez ledachoho sobaku»

The teacher showed the philology students the difference in translation and stylistics between different translators for the same sentence.

Task 2: Compare the quality of the translation of the German phrase «Ich liebe dich» into English.

Google Translate: «I love you»

DeepL: «I love you»

Microsoft Translator: «I love you»

The teacher can show that the translation results in this case are the same in all three systems, which makes them equivalent for a given language pair.

Task 3: Translate the phrase «The agriculture industry plays a vital role in the country's economy» into French.

Google Translate: «L'industrie agricole joue un rôle vital dans l'économie du pays»

DeepL: «L'industrie agricole joue un rôle vital dans l'économie du pays»

Microsoft Translator: «L'industrie agricole joue un rôle vital dans l'économie du pays»

The teacher asked the students to evaluate how accurately each translator coped with this text and to compare their results.

We also showed the students different features, such as the ability to translate images or use voice input, which are available in different translators.

The teacher of the discipline «Information technologies in translation activity» asked the students to translate a short audio file from English to their native language using mobile applications of online translators. She supported the students in using the applications and discussed the translation results, paying attention to possible errors and ways to avoid them.

4. Reliability and speed.

Google Translate has a high level of reliability and speed. It provides instant translations for most languages and has stable web performance.

DeepL is also known for its reliability and speed. It usually provides fast and accurate translations without significant delay.

Microsoft Translator is generally reliable and fast. However, there may be problems accessing the service in case of technical or network problems.

The reliability and speed of machine translation may depend on many factors, such as language pair, text type, technology used, system updates and improvements, etc. Results may change over time and depend on machine translation manufacturers' own mechanisms.

We have a sentence of a special text with which we worked within the discipline «Information technologies in translation activity»:

«Dani zbyrajut'sia z datchyktiv, jaki vstanovleni na sil's'kohospodars'kij tekhnitsi, shchob zdiysnyuvaty monitorynh zdorov'ia gruntu ta vrozhaynosti»

Examples of translation:

Google Translate:

«Data is collected from sensors installed on agricultural machinery to monitor soil health and crop yield»

DeepL:

«Data is collected from sensors installed on agricultural equipment to monitor soil health and crop yield»

Microsoft Translator:

«Data is collected from sensors installed on agricultural machinery to monitor soil health and productivity»

These examples demonstrate that all three translators are able to understand the general meaning of a specialized sentence, but there may be subtle differences between them in the wording and vocabulary used for translation. Accuracy and reliability will depend on the specific context and complexity of the text.

Overall, Google Translate is a widely used and affordable option for many users, especially due to its large number of supported languages and additional features. DeepL, with its high translation quality, is often used by professionals who need accurate and natural translations. Microsoft Translator is also an option with acceptable translation quality and support for many languages.

The choice between these translators depends on your specific needs and priorities. If the availability of many languages and a variety of features is important to you, Google Translate may be the best option. If you need high-quality translations for specialized terminology or difficult texts, DeepL may be a better choice. Microsoft Translator can be a good option for general translations with acceptable quality and reliability (Lucia Specia et al., 2018).

It is also important to note that each translator has their own strengths and weaknesses, and recommendations may vary depending on the specific context and language being translated. It is recommended to try different translators and compare their results for your specific language or text type to make a final choice. With a wide range of resources available, you can use each of these translators for free and see which one best suits your needs.

According to the results of using online translators during the study of the course «Information technologies in translation activity» in the educational environment of the Poltava State Agrarian University, we highlighted the advantages and disadvantages of three popular online translators: Google Translate, DeepL and Microsoft Translator.

Google Translate.

- Advantages:

1. Wide range of supported languages, including rare and less popular languages.
2. Multi-functionality such as text translation, voice translation, photo translation and web page translation.
3. Rich experience and constant updates, which lead to a gradual improvement of translation quality.

- Disadvantages:

1. Inaccuracies may be noticeable in the final translation, especially in complex or contextual texts.
2. He will not cope well with specialized terminology and phrases, especially in scientific or technical texts.
3. Dependence on Internet connection, since Google Translate works mainly in online mode.

DeepL:

- Advantages:

1. Excellent translation quality, especially in contextual texts, thanks to the use of deep neural networks.
2. More accurate translations of technical and specialized terms, making it popular among professionals in various fields.
3. Availability in the form of an API, which allows you to integrate its functionality into your own programs and services.

- Disadvantages:

1. Limited choice of languages compared to Google Translate.
2. Lack of some additional functions, such as photo translation or translation of web pages.

3. Limitations in the free version of the API, which has a limit on the number of requests and the amount of translation.

Microsoft Translator.

- Advantages:

1. Support for many languages, including rare and less popular languages.

2. Integration with other Microsoft products and services, such as Office, Skype and the Microsoft Edge browser.

3. Availability of offline mode for some languages, which allows you to use the translator without access to the Internet.

- Disadvantages:

1. Translation quality can be uneven and depend on specific languages and context.

2. Limited functionality compared to Google Translate, for example, lack of photo translation.

3. Lack of some advanced functions and technologies that are present in competitors, for example, in DeepL.

It is important to consider that the level of quality and functionality of online translators may change over time, as they are all constantly being improved and updated. A better solution when translating important texts may be a combination of multiple translators and manual revision and editing of the translation in order to achieve the best results.

Each of these online translators also has its own exclusive features that distinguish it from others and increase the quality of the translation.

Google Translate.

- Photo translation. Google Translate has the ability to translate text that is in photos or screenshots. It allows users to translate inscriptions, signs and other visible text elements without having to manually type them.

- Voice translation. Users can speak into their device's microphone and Google Translate will automatically translate their spoken word or phrase into the language of their choice.

- Synchronization between devices. Google Translate allows you to save and synchronize the history of translations between different devices, which allows you to conveniently work with the translator on different devices.

DeepL.

- Deep neural machine learning. DeepL uses powerful deep neural networks, which allows it to achieve high translation quality. This technology is able to take context into account and reproduce the nuances of language, resulting in more accurate translations.

- Translation of specialized terminology. DeepL has a deep understanding of specialized terminology in various fields, which allows it to provide more accurate and precise translations for professionals in these fields.

- High productivity. DeepL works quite fast and provides a quick response to translation requests, thanks to the use of powerful computing resources and an efficient network architecture.

Microsoft Translator.

- Integration with other Microsoft products. Microsoft Translator has deep integration with other products and services.

- Integration with Skype. Microsoft Translator can be used to translate voice and text messages during Skype conversations. It allows people from different countries and language groups to easily communicate with each other.

- Network neural machine translations. Microsoft Translator uses proprietary machine learning technologies based on neural networks, which provide high-quality translation and can adapt to different language contexts and speaking styles.

- Real-time multilingual translation: Microsoft Translator can provide real-time translation for multiple languages during presentations or live performances. This allows you to communicate with an audience that speaks different languages without the need for additional translators or prompters.

Translators' exclusive features may change over time as they are constantly being improved and updated, including by adding new features and improving translation quality.

Conclusions

The application of online translators Google Translate, DeepL and Microsoft Translator within the framework of studying the discipline «Information technologies in translation activity» at the Poltava State Agrarian University showed that among the three translators there is a difference in the reliability and quality of the translation depending on the language and complexity of the text (Li & Zhu, 2016). DeepL has a high quality translation of special vocabulary for European languages, while Google Translate and Microsoft Translator may be better for some other languages or for general texts.

Since different translators have their own advantages and limitations, you may consider using a combination of multiple translators. For example, the first translation can be done by Google Translate for speed, then use

DeepL to improve quality, or use Microsoft Translator for specialized topics.

While all three translators have their advantages, they also have their limitations. The quality of the translation may depend on the specific language pair, the type of text and the context. Each user may have their own unique translation requirements and preferences (Rikters, 2019). Therefore, it is important to test each of the applications and determine which translator best suits the needs of the translator and the text.

Machine translation is constantly evolving, and translator updates can improve their quality and performance. Therefore, it is important to keep an eye on new versions of translators and updates that can improve their capabilities.

Despite significant advances in machine translation, online systems are still susceptible to errors and inaccuracies, especially in the context of specialized texts (Garcia, 2010). Therefore, it is important to always carry out editorial checks and improve translations with the help of human experts.

Further research on this topic could include not only Google Translate, DeepL and Microsoft Translator, but also other online translators offered in the market. It is also important to learn how context can affect the quality of translation and how each translator can handle difficult situations.

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