

HISTORICAL AND TECHNOLOGICAL OUTLOOK OF SIMULTANEOUS INTERPRETATION



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***Annotatsiya.** Sinxron tarjima qilish eng murakkab va resurslarni talab qiluvchi faoliyat turlaridan biridir - bu maxsus ko'nikmalar, keng so'z boyligi, yaxshi operatsion xotira va stressga chidamlilikni talab qiladi. Ushbu maqolada biz sinxron tarjima tarixini ko'rib chiqamiz va shu bilan birga ushbu ishdagi hozirgi o'zgarishlar, unga mashinalar va sun'iy intellekt qanday ta'sir qilishini ko'rishga harakat qilamiz.*

***Kalit so'zlar:** sinxron tarjima, tarjimashunoslik, texnologiya, sun'iy intellekt, neyron tarmoq*

***Аннотация.** Синхронный перевод является одним из самых сложных и ресурсозатратных видов деятельности, требующий широкий спектр навыков. В этой статье мы рассматриваем историю синхронного перевода, а заодно пытаемся увидеть, каковы текущие изменения в этой работе, как на нее влияют машины и искусственный интеллект.*

***Ключевые слова:** синхронный перевод, переводоведение, технология, искусственный интеллект, нейронная сеть.*

***Abstract.** Simultaneous interpretation represents one of the most complexed and resource-consuming activities – it requires specific skills, vast vocabulary, good operating memory and stress-resistance. In this article we are looking at the history of simultaneous interpretation, and at the same time trying to see what are the current changes in this work, how it is influenced by machines and artificial intelligence.*

***Key words:** simultaneous interpretation, translation studies, technology, artificial intelligence, neural network.*

Introduction. Theoretical understanding of translation was being formed in the mid-twentieth century, although certain aspects of translation activity were the subject of reflection even in the ancient period. In the 20th century the linguistic aspect was taken as the basis for a systematic understanding of the translation process, which can be consistently seen in the works of various researchers [4, 240; 9, 216; 14,

183; 12, 216; 13, 215; 8, 303; 6, 103; 11, 483], subsequently supplemented by others, for example, psycholinguistic studies [3, 279; 5, 227; 10, 377; 7, 155].

Speaking of interpretation, it has a number of differences from translation, due, first of all, to the form of its performance. Firstly, interpretation is characterized by single-time perception (since there are no fixed forms of texts in the source and translation languages). Secondly, interpretation, to a greater extent than written translation, is contextual and allows for invariability. Thirdly, interpretation is characterized by spontaneity; it is carried out without time delay.

Main part. The practical benefit of interpretation also lies in the fact that both the speaker and the listener are in an equally advantageous position, since the speaker formulates a thought in his/her native language, corrects it if necessary, and the listener perceives the message in his/her native language, if necessary, clarifies it. impossible with written translation.

Interpretation, as we know, is represented by two main types – consecutive and simultaneous modes. Simultaneous interpretation is a type of interpretation, the distinctive feature of which is the simultaneous performance of the speaker and the translation of his/her speech by a simultaneous interpreter. When describing simultaneous interpretation, they usually say that it is carried out by the translator simultaneously, although in reality there is always a slight lag in the voicing of the translated text from the speaker's text; usually for a professional simultaneous interpreter the lag is from 2 to 10 seconds, depending on the subject of the text, its complexity, the psycho-emotional state of both the speaker and the translator, etc.

Carrying out simultaneous interpretation requires additional financial resources, since it requires the use of special equipment, as a rule, a booth with headphones and a microphone for the interpreter, headphones and language switching channels for interpretation recipients.

Currently, as a result of training, an interpreter needs to have the ability and willingness to interact at the above levels with communicants who are the native speakers of different languages and representatives of different cultures. An interpreter contributes not only to the successful exchange of information and planning of a common strategy, but also to mutual understanding between partners [2].

The history of simultaneous interpretation is inextricably linked with the history of translation in general. Translation practice is one of the oldest types of human activity. It is generally accepted that the first interpreters – *tolmach* (*Slavic, Turkic word meaning interpreter*) who helped overcome the barrier of communication between multilingual tribes and nationalities – appeared immediately after

multilingual groups emerged in the history of mankind, and the need for translation arose.

Until the beginning of the twentieth century, only literary translation developed especially actively, i.e. translation of fiction, and, accordingly, the main criterion for a good translation was the translator's ability to accurately convey the features of the individual author's style of the original text.

In the history of simultaneous interpretation, the Nuremberg Trials are becoming a second birth – now it is finally becoming internationally recognized. The demand for simultaneous interpretation is explained by the participation in high-level events of a large number of participants from different countries speaking different languages.

Trial of Nazi war criminals held at the International Military Tribunal in 1945–1946, known as the Nuremberg Trials, leads to the creation of a number of international organizations, for example the United Nations (1945), UNESCO (1946), etc., which include many countries of the world. At the Nuremberg trials, there are two teams of simultaneous interpreters - the Soviet team and the Allied team; there are four working languages: Russian, German, English and French. The simultaneous interpretation service is led by Leon Dostert, the personal translator of Dwight Eisenhower, the 34th President of the United States.

But as any profession, translation and interpretation sphere is effected by the technologies – especially by artificial intelligence. Since the start of the 2010s there has been a constant discussion – will profession of translator survive against the rising technologies.

Despite the huge breakthrough in the field of machine translation and the emergence of effective systems for analyzing and translating texts, the problem of overcoming the language barrier still remains unresolved. Online translators for translating texts have few capabilities and are not very convenient for both business and personal communication, and speech recognition and voice command functions cannot always provide the proper quality of translation [16].

And today there are new capabilities of artificial intelligence: interpretation headphones. The American company Waverly Labs and the Chinese company Timekettle presented their innovative developments – wireless headphones for simultaneous interpretation, capable of recognizing words in 15 different languages and performing translation at the same speed as the speech utterance of the interlocutor. According to the developers, this technology will finally solve the problem of the language barrier and allow people speaking different languages to communicate freely in real time.

Each interlocutor inserts an earphone into his/her ear, turns on the mobile application and hears the other interlocutor's answers, translated into a language he understands. Words are transferred to a cloud data storage and processed using speech recognition and machine translation software. Only two interlocutors can participate in a conversation. According to the company, the headphones are equipped with an automatic translation system similar to Google Translate, and the translation accuracy is rated as satisfactory and reaches 95%. User reviews have shown that translation using such gadgets can be compared to Google Translator in terms of quality. At this stage, such translator headphones can most likely be used only for traveling, to exchange short phrases on the street with passers-by or in a store. Recently, this technical innovation has already had many competitors – Google's Pixel Buds headphones, the Skype Translator function for simultaneous call translation [15].

We should also keep in mind the non-verbal aspects of the interpreter's work. People interact with each other not only with the help of verbal signals, but also with the help of facial expressions, gestures, gaze, body position, which play an important role in conveying meaning and achieving the goal of communication. The non-verbal component in interpreting appeared in articles as a subject of research not so long ago, but still represents a research gap in interpreting discourse [1].

At the moment, it is impossible to completely eliminate the problem of the language barrier with the help of artificial intelligence and computer linguistics, since for correct perception and accurate translation, a “smart machine” must understand the meaning of the text, and therefore have the mechanisms and qualities of the human brain and consciousness.

As for other news in the sphere, Meta recently introduced the SeamlessM4T model, which accepts text and audio input, recognizes speech and is capable of translating it into 100 languages.

Audio translation is currently only available in 35 languages but the model works with input data that uses several languages at once. The project is open source and available on GitHub. Meta also released the SeamlessAlign dataset, which includes 270 thousand hours of spoken speech and its text translation. The company compares its model to the Babel fish from Douglas Adams's *The Hitchhiker's Guide to the Galaxy* books.

The Russian company Yandex introduced the function of simultaneous interpretation of the videos in 2021 [17]. So, the technology is not new for them, and this year they have introduced something new. Yandex launched simultaneous translation of live broadcasts in their browser. simultaneous translation of videos is very different from translation of live broadcasts. If in the first case the neural

network receives the entire audio track at once and can understand the context, then in the second case there is no such possibility and the text must be translated immediately.

To ensure high-quality and fast work, the developers had to completely redesign the architecture of the video voice-over technology. Several neural networks are involved in simultaneous translation of live broadcasts: the first recognizes speech and immediately translates it into text, the second determines the gender of the speaker. At the second stage, another couple of neural networks are connected: one places punctuation marks and selects those parts that contain complete thoughts. They are picked up by another neural network, which translates the phrases into Russian and immediately voices them.

Conclusion. We need to say that the rise of technologies is beneficial for many processes and spheres of human activity. But, as it often occurs, it may have the negative impact too. With all these neural networks and AI developments, there are even more doubts in the relevance and demand for humans-interpreters. Many people are convinced that machines and technological solutions will completely replace interpreters and translators very soon. But as we could see from the history of simultaneous interpretation – this work is not the easiest, and it requires a lot of effort and many hidden skills that are not available to the machines, at least now.

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