A Study of Computer Aided Translation Based on Artificial Intelligence Technology

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Abstract. Artificial intelligence technology has been widely used in various fields, and has become the inevitable trend of social development. Based on artificial intelligence technology, this paper studies the computer-aided translation. Firstly, the concept and development of artificial intelligence technology are briefly introduced. Secondly, the function and application of computer-aided translation under the background of artificial intelligence are analysed. Thirdly, the application of artificial intelligence in computer translation is expounded. Finally, the development of computer-aided translation is prospected.

1. Introduction
At present, one of the focuses of technological innovation that the world pays close attention to is the development boom of artificial intelligence, which promotes the deepening of information technology revolution, makes the influence of technological progress on employment evolve to automation and intelligence stage, and has a significant impact on the employment of different industries, groups and even different economies. On the one hand, technological progress can improve labor productivity, thus driving economic growth and creating new employment opportunities; on the other hand, artificial intelligence can realize large-scale automation and replace part of human work.

Artificial intelligence technology is one of the most advanced technologies in the 21st century. Under the influence of computer technology and the continuous progress of modern science and technology system, artificial intelligence and other modern science and technology have gradually realized the integration with many traditional technology fields. Artificial intelligence has a profound impact on the professional translation industry that is deeply related to cognitive intelligence.

2. Concept of Artificial Intelligence
Artificial intelligence (AI) mainly refers to the technology that artificial machines can be endowed with intelligence similar to human beings. In general, artificial intelligence technology refers to the process of how to realize human intelligence through computer programs. The core problems of artificial intelligence include the ability of reasoning, planning, learning, perception, tool application, limb control, industrial control and so on. With the combination of artificial intelligence and modern people's life and scientific research more and more closely, there are a large number of tools with a certain level of artificial intelligence, including intelligent retrieval, mathematical modeling, logic deduction and Computer-Aided Translation studied in this paper. Thinking comes from the brain, and thinking controls behaviour. Behaviour needs will to be realized. Thinking is the collation of all data collection, which is equivalent to database. Therefore, artificial intelligence will eventually evolve into machine replacing human.
3. Computer-aided Translation Based on Artificial Intelligence Technology

Computer Aided Translation (CAT) is a new language translation tool with translator as the center, machine translation and computer translation as auxiliary. Thanks to its low-cost and high-efficiency working form, computer-aided translation technology has gradually become the key technology for cross-language communication in people's life, work, scientific research and other fields since it was successfully developed at the end of the 20th century.

With the development of artificial intelligence and big data technology, CAT technology has made great achievements in recent years. Various translation websites and software based on CAT technology have greatly reduced the labor intensity and difficulty of traditional translation work. At the same time, with the development of computer storage function, cloud computing and big data, the capacity and content richness of translation memory database will be greatly improved.

The main value of computer aided translation (CAT) is to help translators to translate more easily, efficiently and with high quality. CAT technology greatly reduces the manual translation work intensity of translators and greatly improves the work efficiency. But as a whole, CAT has a wide coverage, and many kinds of technology can be attributed to the system of computer-aided translation technology.

In translation or cross language communication, there are usually a large number of frequently used phrases or sentence patterns with high repetition rate. In view of these repetitive tasks, manual translation still needs to be translated step by step, which consumes a lot of time. However, the computer-aided translation technology can automatically retrieve the translated or saved translation content by searching the database, and can quickly give the translation results for these repeated phrases or sentences; for similar phrases or sentence patterns, it will also give reference and suggestions for translation according to the computer calculation.

It can be seen that computer-aided translation technology is a kind of software which can establish the corresponding model according to the user's behavior habits, so as to achieve self-learning. The ability of CAT to learn new words, new grammar or new sentence patterns can save a lot of time for translation. In addition, the auxiliary enhancement tools of computer-aided translation technology can integrate and utilize the corresponding translation or information in the network resources through the Internet and big data, so as to help translators translate on the basis of the entire Internet resource database, greatly improving the accuracy of translation.

The core of computer-aided translation technology is translation memory technology. When users use this kind of software to translate, the system will add, delete, modify and check the language database data at any time to carry out the translation memory process. Whenever a phrase or sentence pattern that can be accurately mastered in the database appears in the system translation, the system will automatically prompt the closest translation result. At this time, users can choose to use or not to use or edit according to their own needs.

For computer-aided translation technology, one of the most important auxiliary functions is term management. At the macro level, the term management function is to save the data of any repeated or necessary words and sentences in the translation work, and finally converge into a terminology database. Through the integration with the Internet, the term base can not only help the specific staff of this translation, but also help more translators to learn from in their work. At the same time, it greatly improves the translation consistency in the translation work, and saves a lot of discussion and deduction in the previous work.

4. Application of Artificial Intelligence in CAT

With the rapid development of translation technology, a large number of translation software emerge, and the tool versions continue to iterate. AI translation frequently appears in international conferences, and translation technology teaching is becoming more and more popular, which has an important impact on the research of translation technology, and the number of research is increasing.

In recent years, iFLYTEK, Tencent, Baidu and other giants have entered the field of AI translation, and have launched AI translation machines such as "Xiaoyi translator" and "Yijun".

Its intelligent voice translation technology can meet the needs of different scenes, and most of the translation machines are equipped with real-time dialogue function, which has excellent performance.
in translation speed and accuracy. It can provide real-time, accurate and fast synchronous translation services for various cross language communication scenarios such as outbound tourism, foreign language learning, daily work and life, so as to avoid the difficulties caused by language barrier, so that AI translation has become a reality in various types of situations.

In consecutive interpretation, artificial intelligence technology can help translators to organize notes or translate professional words. For example, when translating a large number of professional words in medical conferences, it can provide the results of machine translation for reference. In addition, it can also help the interpreter to do some preparatory work before the meeting, and make the interpreter's work easier by using penetrating search and voice search. Manual translation can optimize the translation effect in real time, realize the automation of preparation before manual translation, and provide prior knowledge for the optimization of machine translation in advance.

For professional teachers and students, we can further analyse whether there are catchphrases or unclear logic in the interpretation by transcribing the translation results, so as to judge the errors more accurately in the target language and find out the improvement methods.

5. Development & Prospects of Computer Aided Translation

The transformation of computer-aided translation technology mainly benefits from the continuous optimization of corpus technology and translation memory technology. Both make CAT technology break the limitation of mechanical translation before. Corpus technology refers to the translation of statistical examples based on the completion of a certain algorithm to translate corpus data into language memory, so as to assist human translation.

For the translation work in the professional field, it is usually necessary to extract and translate a large number of professional terms and vocabulary. The introduction of professional terms, idioms and idioms into the terminology database can help translators to reduce their translation workload and improve their work efficiency. At present, the extraction of terms, idioms and idioms is more reflected in the extraction of single vocabulary. For multi word situation, the extraction accuracy is poor and the unity is difficult to guarantee. It is one of the urgent problems in CAT technology in the future.

The retrieval and matching of translation memory database can help translators to complete or fuzzy match database translation cases before translation, so as to find the same or similar sentence patterns from the cases for reference. However, the current construction of retrieval library is slow, and the number of translated manuscripts in the system is far from meeting the needs of translators. In particular, the translation of some literature, financial and scientific literature can hardly provide accurate and complete reference data. Therefore, the key to the future development of CAT technology is to improve the retrieval efficiency of the retrieval library and the types and quantity of documents in the library.

At present, the more advanced CAT software has a simple function of proofreading. It can prompt the errors of words and grammar in translation documents, and has certain quality control function. However, with the improvement of the difficulty of translation, the current CAT software cannot meet the actual needs of quality control under the situation of higher requirements for complex sentence patterns, terminology collocation and language habits. In the future technical innovation work, it is necessary to integrate the proofreading software and CAT software in a deep level, improve the level of proofreading for the completed manuscript, and avoid grammatical errors, omission of translation, non-compliance with language habits, and ambiguity in expression.

In the era of artificial intelligence, translation technology is the integration of translation humanities and technology under digital humanism. It is the technical requirements of the times and language service industry for translation practitioners, and is an important component of the translation ecosystem. Under the background of huge demand for language service market, translation technology is developing rapidly and its functions are constantly improving. The trend of specialization, integration, intelligence, cloud, ubiquitous, platform and ecology is becoming increasingly prominent. While accepting and embracing translation technology, the impact and influence of translation technology on the nature, category, process, behavior, ethics and other aspects of traditional translation cannot be ignored. Researchers need to make a profound reflection in a broader field.
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