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Robotics Assists Automatic Terminology Translation

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Abstract
With the integration of global economy, cultural exchanges between different countries are becoming more and more frequent. The cultural difference between China and the West is the key to our intercultural communication. Robot technology is one of the most advanced technologies in the world. Translation is a transformation of different cultures and languages. Because of the cultural differences between China and the West, the translator must understand and grasp the relevant culture in advance and realize that language and culture are closely related and mutually reinforcing. In the translation of English words, the ways of expression and life in both Chinese and Western languages will have some negative effects on the translation of English words. In the translation of mother tongue and foreign language, the differences between different nationalities should be analyzed. Using robot technology can make the two different languages to convert, can understand and master different cultures of different countries, so that English communication more accurate. Starting with the translation of English words, this paper expounds the application of robot technology in the translation of English words, and discusses some problems in the translation of English words under machine technology.

Key words: robot technology; English communication mode; Network technology; cultural factor

1. introduction

1.1 the influence of Chinese and Western culture on automatic terminology translation

Civilization is not immutable, but is developing and changing all the time. The symbol of national identity is a kind of culture. In fact, the essence of the translator is the reinterpretation and integration of language and culture. Concrete sociality and social language reflect concrete society and social language to a certain extent. In the process of human historical development and evolution, human intelligence collides with each other, thus forming a civilization. On the whole, "culture" is a kind of thought, and its connotation and transmission ways are different. Therefore, in the process of English cross-cultural translation, we must effectively understand, adapt and master it, because there are huge differences between China and the West [1-4].

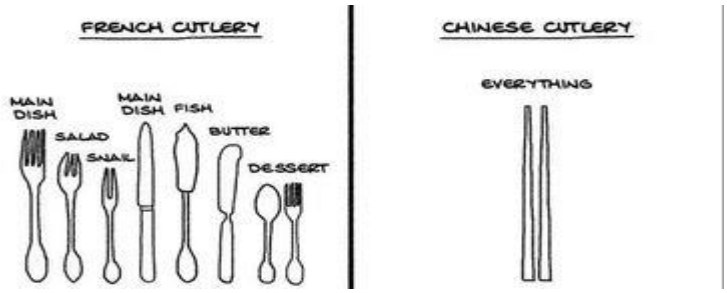
In translation, we must understand and grasp it if we want to grasp its essence. In addition, because they are in different social environments, all kinds of words have certain historical and historical connotations.

1.2 influence of robot technology on language expression

Language embodies human society and culture, and culture is the precipitation of human development. Under the influence of Confucius, the personality of Chinese people is relatively soft, introverted and graceful, which is a traditional Chinese culture characterized by Confucianism, Buddhism and Taoism. On the contrary, Westerners pay attention to the development of personality. They believe that people should be higher than nature, while Westerners have a more frank character, and are not good at speaking their ideas tactfully and clearly. In the process of translating Chinese and Western English words, the language expression based on different countries is adopted. Therefore, the correctness of English vocabulary mainly depends on the translator's understanding of Chinese and Western languages.

In the process of translating English words, due to the differences between Chinese and Western cultures, the basic principles of language etiquette are ignored. If the translation of English words does not pay attention to the basic principles of politeness, it will inevitably cause some damage to its accuracy (as shown in Figure 1) [5-7].

Figure 1 cultural differences between China and the West



1.3 influence of translation of robot technology auxiliary terms on living habits

In the training process, the loss of discriminator is the sum of the probabilities that the true (false) data is false (true) data, expressed as the misjudgment rate. See the formula for the calculation method. The loss of generator is the probability that the discriminator will recognize false data as true data, as shown in the formula.

$$L_d = \frac{1}{m}\sum_{i=1}^{m}\left[\log D\left(x^{(i)}\right) + \log\left(1 - D\left(G\left(z^{(i)}\right)\right)\right)\right]$$

$$L_g = \frac{1}{m}\sum_{i=1}^{m}\left[\log\left(1 - D\left(G\left(z^{(i)}\right)\right)\right)\right]$$

Compared with westerners, when they meet, they often greet "how are you", or "how is everything", or discuss the weather, books and other content. Chinese people ask for food, where to go or what to do. We think it is a kind of greeting that is very familiar and considerate with each other. However, Westerners think it violates privacy [8-9].

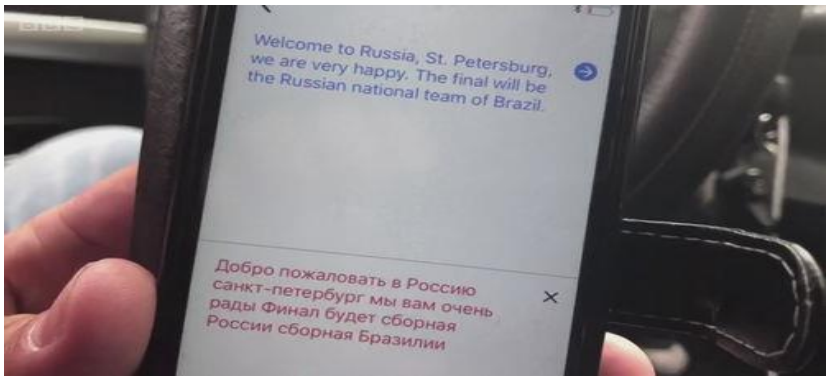
2. research on translation system based on robot technology

2.1 computer aided translation technology

In recent years, due to the rapid development of computer and network technology, the harmfulness of computers has penetrated into people's lives. Cat is a tool similar to CAD (CAD), which enables translators to better complete high-quality, effective and convenient translations. This method is different from the previous translation

machines. Instead of relying on the computer for real-time translation, the whole translation is completed with the help of the user. Compared with the human translation method, this method has the same or better quality, and the Chinese translation speed can reach the original two levels. Cat has pushed the automation technology of the human translation process of artificial Chinese to a new level, which has significantly improved the Chinese translation work and the quality of Chinese. Chinese aided design is a commonly used and imprecise specialized vocabulary, from relatively simple to relatively complex. At this stage, the Chinese translation you know has two aspects: one is theoretical, and the other is reputation. The high-profile Chinese translator uses the Chinese memory to write the required words. In the process of translation, some words will be recorded, so as to promote the translator to use computer aided design. The theoretical translation of Chinese has completely transformed all aspects of the whole translation, thus realizing such as word statistics, data reading, expert vocabulary evaluation, form transformation, ambiguous comparison and comparison. Chinese tra
nslation level (Figure 2 Google Translate online).

Figure 2 Google Translate



2.2 research on computer aided translation technology in English robot assisted translation system

2.2.1 workflow pre translation, translation and post translation

Cat work can be divided into three parts: pre, post and post. The first pre converted project assignment involves thinking about the form and fragments of the full-text document (dividing the text into several parts according to the SRX segmentation rule exchange); Including text conversion and existing conversion, and the creation of memory. During translation, the stored database and specialized vocabulary database are used for Chinese pre translation to determine the corresponding ratio (full and vague) and the number of translations of specific works, so as to ensure the style of the translation is consistent and properly described. Through the translation, quality assurance, desktop layout, synonymous vocabulary collection and processing, to ensure that the product complies with the legal norms.

According to the network architecture of cyclegan, its training purpose is to enable the generator to obtain a mapping from one domain, that is, to transform the image from one domain to another. We assume that if a map can move an image from one area to another, there will be relative loss on this map. The first pre converted project assignment involves thinking about the form and fragments of the full-text document (dividing the text into several parts according to the SRX segmentation rule exchange); Including text conversion and existing conversion, and the creation of memory. During translation, the stored database and specialized vocabulary database are used for Chinese pre translation to determine the corresponding ratio (full and vague) and the number of translations of

specific works, so as to ensure the style of the translation is consistent and properly described. Through the translation, quality assurance, desktop layout, synonymous vocabulary collection and processing, to ensure that the product complies with the legal norms [10-14].

According to the network architecture of cyclegan, its training purpose is to enable the generator to obtain a mapping from one domain, that is, to transform the image from one domain to another. Suppose a map can move a picture from one picture to another, which will lead to the confrontational loss of a picture.

$$\begin{aligned}\mathcal{L}_{GAN}(G, D_Y, X, Y) \quad &= E_{y\sim P_{\text{data}}(y)}[\log D_Y(y)] \\ &+E_{x\sim P_{\text{data}}(x)}[\log(1 - D_Y(F(x)))]\end{aligned}$$

In principle, confrontation training can get the corresponding sum, and the result is the same as the output of the range and X. However, given the data processing ability, the algorithm can map the input image arbitrarily. The image generated during this period can make the allocation of the output conform to the allocation of the object. In order to reduce the loss of mapping, it is necessary to study the mapping function to ensure the continuity of the cycle. In each image, the transformation cycle of the image should be able to restore it to the original image, that is, the so-called continuity of the positive cycle. Similarly, the compatibility of the post cycle is also applicable to all pictures and in all fields:. This characteristic is excited by periodic uniform losses, see equations (2 to 9). In principle, confrontation training can get the corresponding sum, and the result is the same as the output of the range and X. However, given the data processing ability, the algorithm can map the input image arbitrarily. The image generated during this period can make the allocation of the output conform to the allocation of the object. In order to reduce the loss of mapping, it is necessary to study the mapping function to ensure the continuity of the cycle. In each image, the transformation cycle of the image should be able to restore it to the original image, that is, the so-called continuity of the positive cycle. Similarly, the compatibility of the post cycle is also applicable to all pictures and in all fields:. This characteristic is excited by periodic uniform loss.

2.2.2 main technologies

The key technical functions of robot translation include online analysis, thorough matching and fuzzy matching, context matching, search recommendation and sentence segmentation criteria, and the alignment of the two ends of the corpus.

$$\begin{aligned}\mathcal{L}_{cyc}(G, F) = \quad &\mathbb{E}_{x\sim p_{\text{data}}(x)}[\| F(G(x)) - x \|_1] \\ &+\mathbb{E}_{y\sim p_{\text{data}}(y)}[\| G(F(x)) - y \|_1]\end{aligned}$$

At the same time, in the process of robot translation, the mapping of the target domain y back to the source domain x will also produce confrontation losses. By summarizing the confrontation losses in the two mapping directions, the losses of the whole cyclegan are obtained as follows:

$$\begin{aligned}\mathcal{L}(G, F, D_X, D_Y) \quad &= \mathcal{L}_{GAN}(G, D_X, X, Y) \\ &+\mathcal{L}_{GAN}(F, D_Y, X, Y) \\ &+\lambda\mathcal{L}_{cyc}(G, F)\end{aligned}$$

Online parsing is the online parsing of embedded format files in memory locations. It can immediately parse popular format files, such as HTML / SGM / SML / RE /.Tf / word / frame maker. For example, SDL Trados, Wordfast, yeekit and other professionals have developed and designed online analysis of XML format files. (XML can

Extension and editing, just as HTML is a generalized language, depends on the description of specific signs, and also depends on the use of special means to fully understand signs to realize its functions. Cat specific software takes the file form such as title, paragraph, report and document form as a symbolic image to explain. The translator can maintain his relative position as long as he is translating.

2.2.3 complete matching and fuzzy matching, the working principle of which is to determine memory

Comparing the existing library with the fragments to be converted will lead to two situations: full configuration and patterning. Complete matching means that in the text file set, the older versions of the two languages, and the updated source code are the same in spelling, punctuation and sentence pattern changes, 100%; The appearance of CM shows that the two text files are completely consistent when they are exactly matched. That is, the background matches. In theory, a ratio of 1% to 99% would become an ambiguous match. There is a dividing line here. Within this scope, the Chinese translation is not enough. The boundary is fuzzy matching threshold. Automatic setting can be realized, and correct setting can effectively improve the efficiency of operation.

The initialization of the robot and its adaptability to various tasks are realized in the outer loop. The difference is that meta SGD can not only learn the initialized meta learners, but also learn the latest learning methods and learning speed. The following is the internal cycle:

$$\theta' = \theta - \alpha \circ \nabla \mathcal{L}_T(\theta)$$

All of them were obtained through meta training. It not only determines the learning direction, but also determines the learning rate and correction amount. It still depends on the gradient. The length of is the updated step size, and its normalized vector is the search direction. The learning rate of the outer ring must also be updated as follows:

$$\theta = \theta - \beta \nabla_{\theta,\alpha} \sum_{\tau_i} \mathcal{L}\left(f_{\theta_i'}\right)$$

This provides greater flexibility for meta SGD, because it can adjust the step size and step direction, and the model is not limited to stepping in the same direction as the gradient. Meta learners learn from the training set, but the generalization loss is measured on the test set. The goal is to train the meta learner to minimize the loss of expectation generalization and maximize the expectation generalization ability in the task space. In mathematical form, the learning method of meta learner is established as an optimization problem. The optimization method is as follows:

$$\min_{(\theta,\alpha)} E_{T\sim P(T)}\left[\mathcal{L}_{\text{test }(T)}(\theta')\right]$$
$$= E_{\tau\sim P(T)}\left[\mathcal{L}_{\text{test }(T)}(\theta - \alpha \circ \nabla \mathcal{L}_{\tau}(\theta))\right]$$

Context matching includes the context of the Chinese conversion module (100% compliance), and the content of the two sentences must be the same. In fact, when a new Chinese conversion is added to the memory database, a segment of the original text file will be added. The full text is divided into three parts, which are Chinese and the first two parts of the original text document. There is no need to write such fragments. The statement segment standard exchange specification is an XML specification based on Lisa: it provides a unified text domain analysis standard for various specific localized language expression and analysis tools, and aims to realize the convenient and fast analysis and transformation of various applications. TMX software and memory..

The last technique to show is to align objects. This is the whole process of a memory base based on the existing Chinese translation resources. Automatic double headed alignment cannot prevent statement integration and statement order adjustment, so manual operation is required. Based on the alignment of the two ends of the current Chinese data, TM software has not been converted into the accumulated data of Chinese, which can be incorporated into the software of TM system for future application. In short, cat professional software has the following functions: Reusable language representation resources, quality of processing Chinese, simplification of Chinese documents, helping translators collaborate, and helping translators translate (as shown in Figure 3, new media technology is adopted).

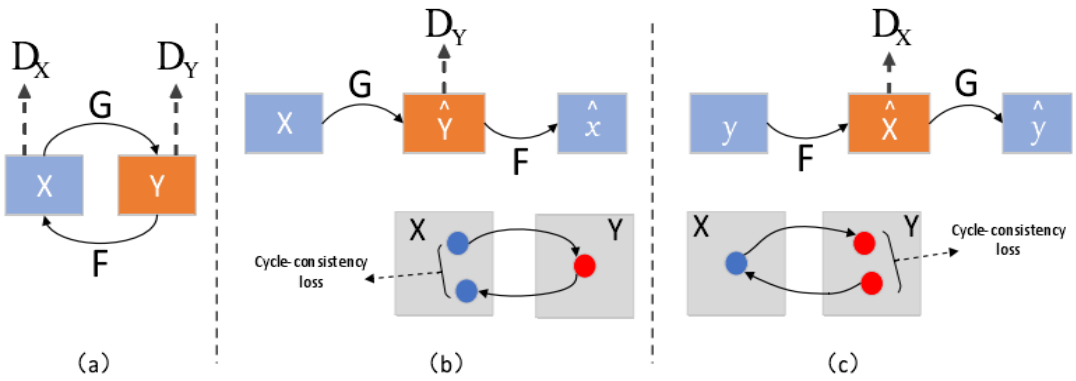


Figure 3 translation using robot technology

3. problems needing attention in the translation of computer English terms

In the process of computer English translation, we should pay attention to the use of special vocabulary and skills, and master the usage of Chinese and English in various languages. Because computer English is technical English, many technical English are based on conciseness and conciseness. When translating, we should pay attention to the logical connection and order, and adopt the method of breaking sentences in the translation to make the translation of complex sentences into simplified sentences; The correct use of Chinese phrases should be appropriately modified to achieve the following:

First, in computer English translation, "Foreignization" translation should be used as much as possible. Because there are a large number of computer related ready-made words in Chinese, people tend to choose their own translation or translation in the actual translation. In the absence of appropriate Chinese words, most people choose transliteration.

Second, in English, we often encounter problems such as "I understand" and "others understand". Some people feel that they can and others can. "I can" is the understanding and learning of specialized technology, and "others understand" is the embodiment of translators' use of their own foreign language. Pure students can understand it within their own scope, but for computer English researchers, to translate the most advanced computer technology into Chinese, they must consider the quality of translation and readers. In terms of computer technology, translation should follow the basic concept of "readers first", avoid being stuck in those obscure languages, and enable people to find technical points.

4. research on cultural factors of robot assisted translation of business English terms

With the development of information technology today, with the rise of network media and the popularity of mobile terminals in teaching, more and more students begin to rely too much on mobile phones, tablets and other

mobile terminals to find their own English vocabulary, such as video, audio, text, etc. as time goes by, they have resisted the traditional translation teaching mode. Especially when English resources are used in teaching, students will be disgusted with the traditional form of translation. Under this situation, translation teaching for English majors is bound to face a new change.

4.1 research object, purpose and method

(1) Subject

More than 3000 non-English college students, mainly engaged in Global trade, machinery, accounting, mathematics, electrical appliances and chemical engineering, conducted a one-year survey. We selected 138 students from the departments of humanities, history, science, technology and engineering, and 142 students from the departments of science and engineering. The proportion of female students was 48.22% and 51.78% respectively. 280 sampling objects represent the whole 3000 people.

(2) Subject objectives

This research focuses on three major issues in Chinese and English:

What is the level of Chinese and English translation of English Majors in the surveyed universities?

Through the research on the bilingual teaching of College English students and other factors that affect the quality of Chinese translation.

Can this thesis provide some impetus for the development of translation and empirical analysis?

(3) Pedagogy

The research idea of this discipline is a science based on experience and exploration, combined with the research results of relevant science, after some thinking and revision. At the beginning of this research work, the subjects were divided into control group and control group. The experimental group adopted the Chinese translation method while the control group adopted the same method. The translation test two years later. The whole process of translation experiment consists of three parts: the first part, the whole part and the last part.

4.2 translation level of non-English majors and relevant conclusions

A total of 280 questionnaires were distributed and 280 survey results were investigated. The total effective rate was 100%. Its core is the design of six working capacities based on pact. The evaluation quantity of 30 questions and questions is based on the evaluation of raw materials obtained from reading and interviewing materials. The student tracking questionnaire at this stage is divided into four different marks: grade one, grade two, grade three and grade four.

The questionnaire adopts the special test method of lik's five levels, from 1 to 5, from weak to strong: 1 represents extremely incompatible, 2 represents incompatible, 3 represents uncertain, 4 represents appropriate, and 5 represents appropriate. Spss19.0 is selected to describe the data and manipulator, and the transformation of control object and control object is analyzed by using mixed matching sampling t-test. The development trend of Chinese translation is discussed, and the main factors affecting Chinese scientific research are discussed. Then, we conducted a one-to-one study. The main purpose of the course is to cultivate the level of English Chinese translation. The interviewees were: with a 1:1 sex ratio of 1:1, 20 homogeneous college students were selected from non English colleges and universities; The part of the interview was converted into a percentage for analysis

and discussion. This paper aims to more accurately reflect the translation level and development trend of non foreigners in Chinese through the comparison of interview and questionnaire data. Chinese... Through scientific research, we can see that before the exam, the subjects' Chinese translation level is very poor, and the subjects' Chinese translation level has been significantly improved.

(1) The translation level of ordinary English learners is not high

In the research, in 2014, there were more than 3000 non foreign language college students, including liberal arts, history, science and engineering departments. A total of 280 college graduates were randomly sampled, who were from the departments of literature, history, science and technology and engineering. According to the test, the average person's translation and introduction level of Chinese is not high. In terms of translation, liberal arts students are better than science and engineering students. The material selected by the editor is a short article without a title, no more than 200 Chinese characters. Because there is no title, we can not grasp the creator's purpose and the theme of the article. It is difficult to translate Chinese, so students are required to have corresponding language skills. Have Chinese translation skills.

From the overall mistranslation, it can be seen that most learners tend to use some low-level words, such as make, let, etc., and cannot properly analyze the sentences in the article. Chinese has a certain impact on English grammar and expression, which shows that they are bilingual. Weak, lack of deep understanding of the original text, bad language, lack of specialized translation and specialized vocabulary, almost no communication skills, let alone innovation. To find out why, there are two main points. First, the level of Chinese translation is not enough. The development of students' translation skills should not be given enough attention to the development of students, teachers, colleges, schools and society. In particular, at present, few Chinese sentences are used in most college English textbooks.

(2) The translation level of the subjects has steadily improved

The summary of English Vocabulary Translation Test clearly shows that people are still not clear about the practical norms required to achieve communicative goals. They tend to focus on listening and listening, while ignoring an important dimension of Chinese performance. Care. The second problem is that the efficiency of teaching is not enough.

In general distribution (such as Gaussian distribution), the average and variance can be determined as long as the distribution type is determined. Assuming that the two images are consistent with this distribution, if their average and variance are similar, the image is more realistic. However, because the size of covariate matrix is too large, this method is not suitable for calculation. Therefore, firstly, the model is transformed into 2048 dimensional eigenvector by using the concept net-v3, and then the average value obtained by this method is compared with the covariance matrix between the matrix. FID score is the FID score obtained from the different distribution of the actual image and the generated image. The method is as follows:

$$FID(x,g) = \|\mu_x - \mu_g\| + \mathrm{Tr}\left(\sum_{x} + \sum_{g} - 2\left(\sqrt{\sum_{x} + \sum_{g}}\right)\right)$$

The growth of enrollment in Colleges and universities has resulted in the shortage of teachers in most colleges and universities. In order to ensure the correct use of English vocabulary in Colleges and universities, many colleges and universities have gradually cancelled the requirements for basic knowledge of English and added

some "follow-up" teaching. At the same time, the research center is also committed to the reform and innovation of Chinese translation. 2、 After the end of the basic English class in grade three, a basic English elective course will be opened according to the requirements of the basic English elective course, including "easy Chinese translation" and "International Business English". "There are other projects, such as" cross-cultural communication ". However, the selective translation course of Chinese is often deliberately ignored by some students, which affects their translation level.

4.3 the role of big data in English professional translation

(1) Rich translation materials

Translation resources are the general name of robots, technologies and environments required by translation activities. They include teachers, textbooks, classrooms, practice bases and policies to ensure the orderly and effective implementation of translation activities. In English majors, before the information technology revolution, traditional translation teaching resources such as teachers, textbooks and classrooms were very scarce. In today's big data era, various platform resources, robot resources, and various types of resources are very extensive. For example, blackberry online translation application management platform, MOOC, microblog, online forum and other platforms; Such as e-books, courseware, exercise bank, network audio and video, etc.

This kind of translation material has good interaction and instantaneity, which not only provides teachers with more choices, but also provides students with a variety of sensory incentives, thus improving their learning interest and learning effectiveness, thus changing the traditional way of interpretation and mechanical transmission. In the context of big data, the translation course for English majors, as English is the most important official language in the world, its translation content is becoming more and more rich and diversified.

(2) Online translation mode

Network translation is the transmission of information through network technology and robot technology, so that teachers and students can transcend the limitations of time and space. Due to its flexible form and low cost, online translation has developed rapidly in recent years. According to the existing survey, the continuous teaching mode in South Korea is mainly based on online translation, and 78% of universities have opened online translation services; Other surveys predict that more people in the United States will teach through the Internet by 2018. Its outstanding feature is that it is systematic and complete, and has initially established a new set of modern Chinese dialect grammar. From the perspective of syntactic form, from form to function and meaning, it has the characteristics of structuralization, functionalization and semantics.

The research scope of this paper is from vocabulary to syntax: virtual words involve adverbs, prepositions, conjunctions and other aspects, and integrate the large-scale open online course with the translation course for English majors, import the MOOC system for English majors, show the course participation, feedback, work, discussion, evaluation, examination and other aspects, and integrate "online learning" with "face-to-face teaching in class", The students' interest, participation and sense of cooperation in the translation course have been comprehensively improved, so as to achieve the teaching effect and effect. The "micro class", "micro class" and other online teaching models of translation teaching for English majors, which are closely related to "MOOC".

5. conclusion

To sum up, the application of robot technology in the research of English robot assisted translation system can enable readers to complete the translation work with high quality, accuracy and efficiency. Translation evaluation is an activity and process of scientifically setting translation evaluation indicators and items according to the characteristics and laws of translation, and systematically recognizing, evaluating and judging the value of classroom translation related activities. In traditional translation, students' translations can only be corrected by teachers, and most of the evaluations are given in writing by teachers. In this one-way mode, teachers provide few robots, and students' reference value is limited. At the same time, students are still unable to understand some knowledge points because they can not communicate and interact directly with teachers. Therefore, in the research process of English robot assisted translation system, we should increase the use of robot technology, and promote the research work of English robot assisted translation system.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors declare no conflicts of interest.

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