

# Application of Artificial Intelligence Technology in Forestry News English Translation

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## **Abstract:**

As more and more artificial intelligence technology is applied to the field of forestry information English translation, many large forestry enterprises and organizations in academia, industry and even the world pay much attention to machine translation technology. This paper analyzes the application status of Baidu neural network translation and the application effect of translation system. At the same time, this paper further explores and clarifies the practical role of the combination of manual translation and the current translation technology in translation practice. Based on the background of artificial intelligence, this paper expounds the further development of human-computer translation to achieve high interaction and accurate output. In view of the problems existing in AI + translation, this paper analyzes the representative technology applications and summarizes the development status of AI technology. At the same time, this paper discusses the coupling path and development prospect of AI Artificial translation and machine translation.

**Keywords:** *Forestry news, neural network. human machine translation, artificial intelligence, data coupling.*

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## I. INTRODUCTION

As the artificial intelligence in the field of translation, machine translation has developed from rule-based machine translation and statistics based machine translation to neural network machine translation, which has become the mainstream technology in the field of translation [1-2]. With the improvement of computer computing power, the explosive growth of multilingual information, and the translation API launched by major Internet giants, machine translation technology gradually goes out of the ivory tower and begins to provide real-time and convenient translation services for ordinary users [3]. Baidu translation software has made great

breakthroughs in massive translation knowledge acquisition, translation model, multilingual translation technology, etc. it can accurately respond to massive and complex translation requests on the Internet in real time [4-6]. Baidu translation research and development of in-depth learning and a variety of mainstream translation model integration of online translation system and based on "pivot language" technology, in the industry leading level, has been widely recognized in the world.

## **II. THE IMPLEMENTATION PATH OF MACHINE TRANSLATION MODEL**

### **2.1 A Case Study of Baidu's English Chinese Translation**

This paper selects two groups of English and Chinese sentences and discourse materials, and uses Baidu translation to translate them online [7]. As can be seen from the translation results below, first of all, there are some problems in the translation results of Baidu translation using neural network machine translation technology, which need to be improved compared with manual translation. The first problem is missing translation. In the table below, some words in the source language are not translated, and sometimes a long sentence is separated by commas, and several clauses are not translated. Another problem is text translation. The current machine translation is single sentence translation without considering the context, which leads to the translation appears stiff and incoherent. However, compared with the traditional Machine Translation, Baidu translation fits the audiences, and simultaneous interpreting of sentences and texts is consistent with Chinese grammar rules, expression habits and cognitive habits of Chinese audiences. At the same time, the accuracy in semantics, grammar, mood and other aspects has been significantly improved, and the practicability of the translation results is also high. It is undeniable that the quality of neural network translation technology in translating simple and real sentences is good. If human beings are more interested in understanding the meaning of a sentence than in the quality of translation, artificial intelligence translation software such as Baidu translation will be very helpful. Neural network translation uses a mechanical and statistical process to translate different languages. It will mark out the different patterns of target and serious words and phrases, and try to choose the most convenient pattern in translation. Language is a profound art, a joke in life, a pun or a suggestive language, which is the most difficult obstacle to machine translation.

The fixed mode of machine translation sometimes leads to poor translation quality, which makes our expression worse; And artificial translation will consider the culture and context of the language and the historical and cultural background behind the words. At the same time, it will also study the theme before the word translation. Artificial translation will continue to make self demands on the acquisition of translation ability and other humanistic aspects to

improve itself. Generally speaking, manual translation is a complicated process. However, machine translation under the background of artificial intelligence is still lack of common sense and the ability to solve problems abstractly, so that it can fully grasp the discipline of human language.

## 2.2 new exploration of the combination of human-computer translation

Although neural network machine translation technology has greatly improved the quality of translation and made a qualitative leap in machine translation, when dealing with complex articles with deep emotional color, the quality gap between machine translation and manual translation is hard to accept. An important reason is that the current neural network translation technology is actually to simulate the human brain to process some simple information, but due to the complexity of the human brain, in the aspects of information recognition and processing, emotional cognition, the technology is still unable to imitate, let alone copy. Chinese mathematician and linguist Zhou Haizhong once pointed out in his paper "fifty years of machine translation" that in order to improve the quality of machine translation, the first thing to solve is the problem of language itself rather than programming [8-9]. If we only rely on some programs to do machine translation, there is no way to improve the quality of machine translation. Therefore, developers need to consider the machine's cognition of text and the choice of translated text.

Model front may provide a new idea for the combination of human-computer translation. Model front is a risk prediction platform for the correctness of machine translation sentences. It uses deep learning and very large data sets, adopts a completely different risk prediction method of machine translation, and opens up many new ways to balance the scale of machine and the quality of manual translation. First of all, different from the quality assessment of corpus level assessment engines such as Bleu and meteor, model front can make real-time risk prediction, so that the client application can decide how to respond to the translation risk of each sentence according to the translation speed, scale and quality objectives of its users. Model front also allows users to use good machine translation immediately and send only risky translations to manual translators. Secondly, the translation results can also be prioritized according to the risk, so that manual translation can deal with the translation with the highest risk first. Model front can also compare the translations from multiple APIs to select the best translation. Users can compare the translations of Baidu translation, Google translation and other APIs at the same time to give priority to the best translation results.

The input and output of the system shall support the input and output of language mode by the user; It is advisable to support input and output of multiple language modes, including but

not limited to text, voice, image, video or document. The requirements of system service engine include the requirements for language modal processing and machinetranslation engine. The specific requirements include: (1) language mode processing: it is necessary to support the processing of language mode into the data format acceptable to the machinetranslation engine; It is advisable to support a variety of language mode processing methods, including but not limited to speech recognition, speech synthesis, optical character recognition, image recognition, image rendering, document format analysis, coding and decoding;

(2) Machinetranslation engine: it should respond to the user's translation request in time; It should support the translation of one language into another, and the translation results can accurately express the information covered by the source language, meet the needs of different translation purposes and requirements, and the needs of cross language communication among users; It is advisable to support the mutual translation of multiple languages; It is advisable to support simultaneous interpreting mode. Offline translation without network connection status should be supported.

Model front compares the conversion of auto ml translation (using the latest neural machine translation technology to translate strings into any supported language) with the conversion result of the default translation API to select the best conversion for each sentence. This function provides a better channel for enterprises and developers who lack AI experience in various industries to translate. In addition, if users know more than one language, they can use the model fr you t console to compare the translation with different languages, and finally choose the best language displayed on the console. Many functions of model front console can not only reduce labor costs, but also enhance the confidence of users, especially professional translators. For example, when a member of a translation team uses machine translated text to reply to user or customer comments or e-mails, the model FHNT console can be used to check whether there are risks in translation before sending, so as to increase the confidence in machine translation reading and writing in business workflow. Secondly, comparing the functions of translated texts will help translators to screen and improve the quality of translated texts. These can show that many errors in machine translation can be detected and prevented by using today's artificial intelligence technology correctly. Translators can also give full play to human language advantages, spend less energy to focus on correcting the wrong results of machine translation, and strive to achieve the "faithfulness", "expressiveness" and "elegance" of the translation under the condition of making good use of machine translation technology, so as to further promote the rational and efficient combination of artificial translation and machine translation [10-11].

### **III. EVALUATION OF TEACHING STEPS AND REQUIREMENTS AND CASE STUDY**

### 3.1 Evaluation of teaching steps

Teachers grasp the immediate evaluation according to the teaching rhythm, and the content that cannot be evaluated immediately can be reflected in the delayed evaluation.

(1) The evaluation criteria for teachers and students to learn together. The current evaluation of College English translation teaching mainly focuses on the students' mastery of grammar and sentence patterns, which can not accurately reflect students' translation level. The output driven hypothesis requires different evaluation criteria for different outputs. Therefore, teachers can draft different evaluation criteria for communicative goals and language goals, and then discuss them with students. Teachers should clearly describe the evaluation criteria of specific tasks for students to understand and check.

(2) Students submit their outputs. Teachers can ask students to submit translation or other output tasks through email, wechat and report within the specified time limit.

(3) Evaluate the output in class. For each task assigned in the facilitation link, the teacher should make a different and targeted evaluation. Teachers and students can participate in the evaluation together. For example, the teacher modifies the translation and selects some common problems for annotation. In class, students are asked to discuss the translation and discuss the evaluation criteria. Then, the teacher will send the uncorrected translation to the students to discuss the reasons and opinions for the revision. Teaching steps and requirements of "facilitation" is shown in Table 1.

(4) Evaluate the output after class. Students refer to the evaluation in class, mark the uncorrected translation, and submit the output results. Other students who do not participate in the evaluation must submit the output results on the network course center platform for teachers and students to evaluate together. This way of involving students in the evaluation can deepen the students' understanding of the evaluation criteria, so as to better complete the output task (Table 2).

**TABLE I. Teaching steps and requirements of "facilitation"**

O. <sup>N</sup>	TEACHING STEPS	TEACHING REQUIREMENTS
1	Teachers describe output tasks	Make students clearly understand the steps to complete the output task and the specific requirements

		of each step
2	Students are given selective learning and teachers give guidance	It enables students to choose the content, language form or discourse structure required by the output task from the input
3	Students practice output, teachers give guidance and check	Enable students to apply selective learning results to output tasks

**TABLE II. Teaching steps and requirements of "evaluation"**

<b>N O.</b>	<b>TEACHING STEPS</b>	<b>TEACHING REQUIREMENTS</b>
1	Evaluation criteria for teachers and students' joint learning	The standard is clear, easy to understand and easy to check
2	Students submit outputs	The deadline of submission is clear, and the form of submission is clear
3	Teachers and students evaluate the output in class	Effective use of time, clear requirements for the audience, targeted teacher evaluation
4	The output of teacher student evaluation after class	Teachers and students participate in the evaluation together, and the output results submitted by students in succession are used as the basis of formative evaluation

### 3.2Case study

Through the pretreatment of data sample information process, the data samples used in the analysis process are listed, as shown in Table 3.

**TABLE III. Data pattern of clustering**

<b>STUDY ATTITUDE</b>	<b>STUDY ABILITY</b>	<b>STUDY METHOD</b>	<b>STUDY EFFICIENCY</b>
0.65	0.6	0.56	0.58
0.65	0.6	0.56	0.58
0.35	0.35	0.68	0.33
0.76	0.76	0.31	0.75

0.8	0.8	0.81	0.84
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Regression analysis of influencing factors of study effect score difference is shown in Table 4.

**TABLE IV. Regression analysis of influencing factors of study effect score difference**

INFLUENCE FACTOR	B	BET A	R2	△R2	Z	P
Self Acceptance	-0.167	- 0.149	0.104	0.15	-1.862	0.065
Social Support	-0.300	- 0.241	0.154	0.029	-3.094	0.002
Gender	1.997	0.17 9	0.196	0.029	2.386	0.018
Nervous	-0.122	- 0.224	0.226	0.030	-2.839	0.005
Reasonable Behavior	-5.43 8	- 1.191	0.247	0.021	2.482	0.014
Fantasy Behavior	4.965	0.16 9	0.268	0.021	2.150	0.033

#### IV. DISCUSSION

The final completion of translation needs to be reconstructed, that is, the translator reorganizes the equivalent factors and expresses the important information in the original text in the target language. In the reconstruction stage, the machine translation has obvious signs of "migration", that is, to translate word by word, which seems faithful and far from faithfulness. In order to better express the inner spirit of the original, sometimes it is necessary to change its surface form, and select the best form required by the translation. English Hypotaxis, often uses various means of connection to express grammatical meaning and logical relations, pays attention to explicit response and structural form, and the syntactic structure is rigorous; Chinese emphasizes parataxis, uses less or even does not use formal means of connection, expresses grammatical meaning and logical relationship through the meaning of words or clauses, pays attention to implicit coherence and functional meaning, and has loose syntactic structure.

Around the technological progress, language service industry has three major development trends: cloud technology mode using cloud and mobile Internet, artificial intelligence translation mode of MT and PE, and cooperation mode combining the whole process of translation company, interpreter and customer demand. The following is an example of AI translation to illustrate the development prospects of AI in language services. The continuous development and maturity of artificial intelligence service technology, tools and platforms effectively integrate language resources, which has improved the production efficiency, significantly optimized the service process, greatly improved the business level, and thus effectively constructed a complete language service industry chain, These provide strong technical support for the sustainable development of language services. Under the current situation, the development of translation industry is affected by the cognitive technology of artificial intelligence and big data of multi language. The breaking of information barrier and the new growing topic of scientific research ability, that is, how to realize the collaborative development among big data, artificial intelligence and language.

At present, the government, enterprises and colleges and universities jointly establish language big data alliance. The resource sharing platform and cooperation mechanism advocated by the alliance will greatly help to realize collaborative innovation, and also promote the common development of big data, language and artificial intelligence. In the development, although AI translation has brought many convenience and fast for the public work and learning, the current AI translation technology has not reached the mature level, and many defects still exist in specific operation and application. For example, the translation of rules must be based on the rules formulated by experts, which has great limitations, The key is that regular maintenance and update of rules not only cost a lot of costs, but also are extremely difficult; However, statistical translation requires a large number of corpus in translation, and it needs a long time to adapt in different environmental fields. In general, even though the development of AI translation is good, the quality of translation, the speed of system operation, the operability of the system, and the ability to deal with different types of language phenomena still need to spend a lot of energy and efforts to improve further.

## **V. CONCLUSION**

At present, we can see that machine translation not only improves the speed of using human language tasks, but also reduces the burden of human brain. However, at this stage, neural network translation technology is not mature, and the results are not satisfactory when dealing with some texts and complex sentences. The combination of machine translation and manual translation is not complete. Therefore, this paper wants to say that through the feasibility



analysis of the combination of neural network translation technology, translation risk prediction technology and manual translation, a new possibility of a new human-computer translation mode is realized, which greatly reduces and corrects translation errors, This combination of human-computer translation at a higher level may be the feasible way to continuously improve the quality of translation.

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