

## Assessment of the Translation and Post-Editing of Machine Translation (MT) With Special Reference to Chinese-English Translation

WANG Wei<sup>[a],\*</sup>; ZHOU Weihong<sup>[b]</sup>

<sup>[a]</sup> School of Interpreting and Translation, Beijing International Studies University, Beijing, China.

<sup>[b]</sup> Department of College English Education, Beijing City University Beijing, China.

\*Corresponding author.

Received 21 May 2023; accepted 15 August 2023

Published online 26 September 2023

### Abstract

The current research reports the real performance of machine translation engines (DeepL and GPT-3.5) in translating Classical Chinese into Modern English as well as the post-editing quality of GPT-3.5. The statistical data reveals that: 1) machine translation saves more time and processing energy than human translators; 2) GPT-3.5's performance in Chinese-English translation is better than DeepL, and it has the advantage of post-editing and self-evolution; 3) Human translators' ability of semantic processing is superior than DeepL and GPT-3.5. Thus human translators and machine translation engines shall have a good cooperation in improving the accuracy, comprehensibility and fluency of translated texts.

**Key words:** Translation; Post-editing; GPT-3.5; Cooperation

Wang, W., & Zhou, W. H. (2023). Assessment of the Translation and Post-Editing of Machine Translation (MT) With Special Reference to Chinese-English Translation. *Higher Education of Social Science*, 25(1), 27-36. Available from: URL: <http://www.cscanada.net/index.php/hess/article/view/13164> DOI: <http://dx.doi.org/10.3968/13164>

### OVERVIEW OF MACHINE TRANSLATION AND POST-EDITING

Machine translation (MT) is a technology that aims to automatically translate text from one language to another using computer algorithms. MT has been one of the main

research topics in computational linguistics (Weaver 1955). It has grown significantly over the years, driven by advances in artificial intelligence (AI) and natural language processing (NLP). MT systems analyze and process large amounts of bilingual data to learn patterns and generate translations. Machine translation can be classified into two main approaches: rule-based and statistical. Rule-based MT relies on linguistic rules and dictionaries to translate text, while statistical MT uses statistical models trained on bilingual corpora to generate translations (Brown et al., 1993; Och & Ney, 2003; Koehn, 2010). More recently, neural machine translation (NMT) has emerged as a dominant approach, leveraging deep learning techniques to improve translation quality (Cho et al., 2014; Johnson et al., 2016; Lample & Conneau, 2019).

While machine translation has made significant progress, it still faces challenges in accurately capturing nuances, idioms, and cultural references, leading to occasional errors and awkward phrasing. This is where post-editing comes into play. Post-editing involves human linguists or translators reviewing and modifying machine-translated output to ensure high-quality and natural-sounding translations. Post-editing serves as a vital step in the translation workflow, enhancing machine-generated translations by addressing issues of fluency, grammar, terminology, and overall coherence (O'Brien, 2010, Hu & Cadwell 2016, Rowada, 2016). Post-editors refine the output by correcting errors, adapting the content to the target language's conventions, and ensuring the translation meets specific requirements or style guidelines. Post-editing workflows can vary depending on the context and purpose of the translation. Light post-editing involves minimal changes to the machine-generated translation, aiming for quick readability and understanding. Full post-editing, on the other hand, involves a more comprehensive review, ensuring the final translation meets the quality expectations of professional human translation. Post-

editing is beneficial in several domains, including legal, medical, and technical translations, where accuracy and precision are crucial. It saves time and cost compared to translating from scratch, as the machine-generated output provides a starting point for the post-editor to work with. However, it requires skilled linguists with expertise in both the source and target languages, as well as domain-specific knowledge, to effectively improve and refine the translations. With the continuous advancements in machine translation technology, the demand for post-editing services is expected to grow. As MT systems improve, the need for post-editing might shift from correcting errors to fine-tuning and adapting the output to specific voices, styles, or cultural nuances. We believe that machine translation has revolutionized the translation industry, offering the ability to quickly and automatically translate text. Post-editing realized by human translators and machine translation engines could complement this technology by refining and enhancing the machine-generated translations to meet high-quality standards. It combines the strengths of automation and human expertise to deliver accurate and natural-sounding translations that effectively bridge language barriers.

## 1. METHODOLOGY AND TRAINING DATA

The current empirical study adopts quantitative and qualitative research methods. We selected 2 classical Chinese texts (see Appendix I) as source language texts. The texts were first translated by the authors and then revised by our U.S. colleagues from New York and Baltimore. Thus the two English versions could be deemed as reference texts (see Appendix II). Then the two STs were respectively translated by DeepL and ChatGPT-3.5. In this way we obtained another two TTs (see Appendix II). In the phase of post-editing, GPT-3.5 were asked to revise and edit the three TTs translated by DeepL, GPT-3.5 and human translators in order to upgrade the comprehensibility, accuracy and fluency. So now we got three post-edited versions by GPT-3.5 (see Appendix III). The 6 versions make up the source for our training data. We adopt the traditional human assessment approach to evaluate the versions' quality with the algorithm "TOTAL SCORE = COMPREHENSIBILITY (40%) + ACCURACY (30%) + FLUENCY (30%)". The 6 texts were evaluated respectively by 5 teachers from Canada and the United States and we transform the primary scores into mean values.

Our hypothesis is like this: due to the lack of certain register parameters (field, tenor or mode), sometimes machine translation softwares (DeepL, GPT-3.5) might fail to provide an accurate translated version. Thus post-editing by GPT-3.5 and human translators could help improving translation quality and accelerate post-editing process. As an AI language model, ChatGPT can potentially be used for post-editing and revision tasks

in translation. However, it's important to note that the extent to which ChatGPT can edit, revise, or correct the first version produced by DeepL (or any other translation software) depends on various factors. However, professional human translators might have a seat in future translation industry as they could coach ChatGPT by correcting its errors. Artificial intelligence has happened and we shall no longer ignore it. Traditional translation studies and translator training must face the new situation and ingratiate themselves into the great transformation.

## 2. STATISTICAL DATA ANALYSIS

The current research plans to analyze the translation quality and efficiency of MT and the practical application of GPT-3.5 in post-editing by observing the following key factors: 1) overall performance (scores, 100%); 2) length (numbers of words adopted in English versions); 3) time (seconds). As it has been mentioned in the section above, the mean values of scores were calculated after the 5 judges gave their respective scores. The statistical results are respectively presented in Table 1 and Tale 2.

**Table 1**  
**Scores (Mean), Length, and Time of Text 1**

	DeepL (1st)	DeepL (P)	GPT- 3.5(1st)	GPT- 3.5(P)	Human (1st)	Human (P)
Score (100%)	20	55	75	80	100	100
Length (words)	246	286	279	306	320	350
Time (seconds)	3	4	4	4	3000	4

**Table 2**  
**Scores (Mean), Length, and Time of Text 2**

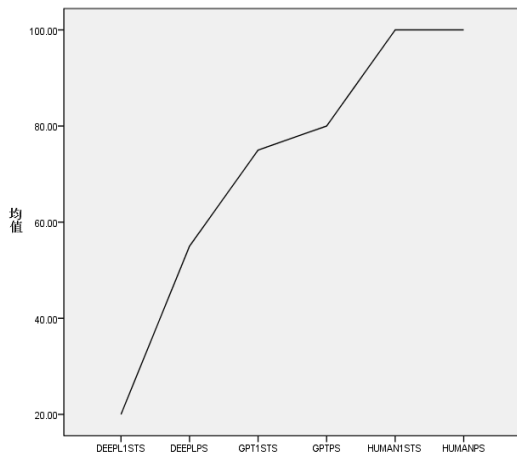
	DeepL (1st)	DeepL (P)	GPT-3.5 (1st)	GPT-3.5 (P)	Human (1st)	Human (P)
Score (100%)	15	65	60	70	100	90
Length (words)	366	422	383	405	510	501
Time (seconds)	3	4	4	4	3600	4

## 3. DISCUSSION

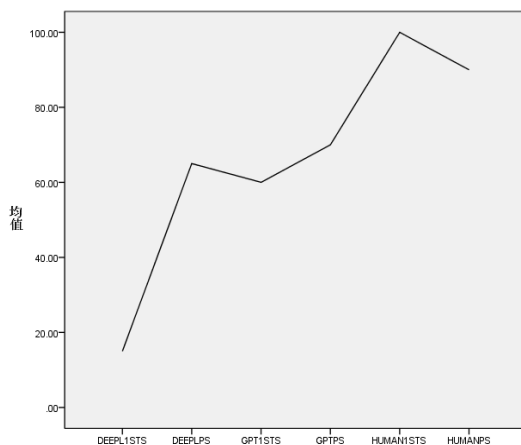
The present analysis plans to discuss the experimental results quantitatively and qualitatively.

### 3.1 Quantitative analysis

First, the data presented in Table 1 and Table 2 demonstrates the advantages as well as shortcomings of MT and human translators. MT can finish the translation task in a very short time window (3 seconds for DeepL and 4 seconds for GPT-3.5). While the traditional translation by human translators are far more time-consuming (50 minutes and 60 minutes respectively). However, the general performance (COMPREHENSIBILITY, ACCURACY, FLUENCY) of human translators are better than MT (see Figure 1 and Figure 2).



**Figure 1**  
General performance of DeepL, GPT-3.5 and human translators in translation and post-editing of text 1.



**Figure 2**  
General performance of DeepL, GPT-3.5 and human translators in translation and post-editing of text 2.

Furthermore, GPT-3.5 even made several errors in post-editing human translators' English version of text 2, which compromised the post-edited version's score. Data listed above obviously reveals that human translation's quality is more reliable than MT's. The mathematical values of SCORE and LENGTH have a strong tendency of correlation, which is consistent with our previous research (Wang & Zhou, 2019), i.e., translators tend to extend the length of translated versions in order to decrease errors and improve translation quality. Explicitation is a robust tendency in translating process. Likewise, data presented in Table 1 and Table 2 also proves that MT also has the tendency to extend TT length to make it more explicit and decrease ambiguity.

### 3.2 Qualitative analysis

Secondly, although quantitative analysis above can provide an intuitive proof, qualitative analysis is absolutely necessary for improving translation quality and post-editing. MT can generate various types of errors

due to the complexity of language and the limitations of current translation technologies in translating process and post-editing process. Here are some common error types found in the current experiment, along with their causes:

#### 3.2.1 Grammatical Errors

1) DeepL: In the middle of the Taihe period, Zheng Renben's cousin, whose name he does not remember, tried to visit Songshan Mountain with a Wang Xiucui.

2) GPT-3.5: During the Taihe period, Zheng Renben, my cousin's name forgotten, once went to Mount Song with a scholar named Wang.

3) Human translators: In a year between 827 and 835 (China's Tang Dynasty), Zheng Renben's cousin and his friend Wang once visited Mt. Song in central China.

MT may produce translations with incorrect word order, verb tenses, agreement, or missing articles and prepositions. This is often because languages have different grammatical structures, and machines may not always transfer them accurately. Human translators intentionally omitted the meaning "forget" in ST, while only adopted the expression "Zheng Renben's cousin" without mentioning his name.

#### 3.2.2 Semantic errors

1) DeepL: He crossed the streams from the pineapples to the mountains, and lost his way back to his home.

2) GPT-3.5: They wandered through ravines and remote valleys, becoming lost and unsure of their whereabouts as dusk approached.

3) Human translators: By crossing secluded valleys and running brooks, the two gentlemen were so fascinated by the spectacular views that finally they got lost.

Machine translation systems often struggle to grasp the nuanced meanings of words or phrases, leading to incorrect interpretations. This can occur because machines lack real-world knowledge and context.

#### 3.2.3 Contextual errors

1) DeepL: When Lu Ji was in Wu, a guest of his family offered him a fast dog named Huang Er, which he often accompanied.

2) GPT-3.5: While he was in Wu, a guest from a family presented him with a swift hound named Huang'er.

3) Human translators: When he lived in the Shire of Woo, one tenant of the Lu family presented him a hound named Yellow Ears.

Understanding context is challenging for machines. They may misinterpret words with multiple meanings or rely on a limited window of context, resulting in translations that don't fit the overall meaning of the text. The error listed above made by DeepL and GPT-3.5 might be caused by the lack of historical context, i.e., the word *men ke* in the ST simply means "tenant" in ancient China.

#### 3.2.4 Logical errors

1) DeepL: He also borrowed a dog from someone who was 300 miles away, and the dog knew the way to return himself and arrived home in one day.

2) GPT-3.5: On one occasion, Lu Ji borrowed something from a person who lived 300 miles away.

3) Human translators: Lu ever lent the dog to a friend and his friend took the dog on a trip.

Ambiguous phrases or sentences can be translated in different ways, and machines may not always choose the correct interpretation without additional context. This is particularly challenging in languages with a high degree of ambiguity. The errors made by DeepL and GPT-3.5 listed above is caused by the ambiguity of the ST *jie* (borrow & lend) in Chinese, while human translators made the right choice by considering the contextual information.

#### 4. IMPLICATIONS FOR TRANSLATION INDUSTRY AND TRANSLATOR/INTERPRETER TRAINING PROGRAMME

The cooperation model between ChatGPT (or other machine translation engines) and human translators plays a significant role in modern translation practice and the post-editing process. This model involves a collaborative effort where both the machine and the human translator work together to achieve high-quality translations. Here's an elaboration of how this cooperation model works in both translation practice and the post-editing process. Initial draft generation might be realized by MT. In the translation practice phase, the machine translation system, such as ChatGPT, is used to generate an initial draft of the translation. MT can quickly provide translations for a large volume of text, making it efficient for handling routine or less complex tasks. Efficient handling of repetitive content is another obvious advantage of MT. MT excels at handling repetitive content, such as product descriptions or technical documents. It can provide consistent translations throughout the text. Human translators often use machine-generated translations as a starting point, along with other reference materials, glossaries, and style guides. Human translators review and edit the machine-generated draft to improve accuracy, fluency, and ensure that it aligns with the intended context and audience. Human translators bring their cultural and contextual knowledge to the process, which is essential for accurately translating idioms, cultural references, and industry-specific terminology. The human translator may also conduct post-editing, which involves more substantial revisions to the machine-generated text. This step is crucial for complex or high-stakes content. The translator ensures that the final translation is not only accurate but also culturally sensitive, contextually appropriate, and meets any industry or client-specific requirements. In cases where machine translation is used extensively and post-editing is required, the cooperation model can be even more pronounced. Human translators with expertise in the relevant domain review and edit the machine-generated translation. They correct errors, improve fluency, ensure terminological consistency, and

adapt the translation to the target audience and context. Specialized translation tools and platforms may be used to facilitate collaboration between human translators and the machine translation system. Human translators can provide feedback to the machine translation system about the errors encountered during the post-editing process. This feedback can help improve the system's performance over time. The cooperation model aims to strike a balance between efficiency and translation quality. Routine or straightforward content can be handled more efficiently by machines, while complex or creative content benefits from human expertise. The cooperation model between ChatGPT and human translators leverages the strengths of both parties: the speed and efficiency of machines and the linguistic and contextual expertise of humans. This collaborative approach is increasingly prevalent in the translation industry, resulting in high-quality translations that meet the diverse needs of clients and audiences.

#### REFERENCES

- Brown, Peter. F, Stephen A. Della Pietra, Vincent J. Della Pietra, and Robert L. Mercer (1993). "The mathematics of statistical machine translation: Parameter estimation". *Computational Linguistics*, (19)2: 262-311.
- Cho, KyungHyun, Bart van Merriënboer, Dzmitry Bahdanau, and Yoshua Bengio (2014). "On the properties of neural machine translation: Encoder-decoder approaches." *CoRR*, abs/1409.1259.
- Hu, Ke, Patrick Cadwell (2016). "A Comparative Study of Post-editing Guidelines." *Baltic J. Modern Computing*, Vol. 4 (2016), No. 2, 346-353.
- Johnson, Melvin, Mike Schuster, Quoc V. Le, Maxim Kiryun, Yonghui Wu, Zhifeng Chen, Nikhil Thorat, Fernanda B. Viégas, Martin Wattgenberg, Greg Corrado, Macduff Hughes, and Jeffrey Dean (2016). "Google's multilingual neural machine translation system: Enabling zero-shot translation." *CoRR*, abs/1611.04558.
- Koehn, Philip (2004). *Statistical Machine Translation*. Cambridge: Cambridge University Press.
- Lample, Guillaume, Alexis Conneau (2019). "Cross-lingual language model pretraining". *CoRR*, abs/1901.07291.
- O'Brien, S. (2010). Introduction to Post-editing: Who, What, How and Where to Next?" Accessed January 2020. Available at <http://amta2010.amtaweb.org/AMTA/papers/6-01-ObrienPostEdit.pdf>
- Och, Franz Josef, Hermann Ney (2003). "A systematic comparison of various statistical alignment models." *Computational Linguistics*, 29(1): 19-51.
- Rowda, Juan. (2016). "Better, Faster, and More Efficient Post-editing." Accessed January 2020. Available at <http://www.gala-global.org/publication/better-faster-and-more-efficient-post-editing>
- Wang, W., & Zhou. W. H. (2019). On Lengthening and Explicitation in the Process of Translating: An Empirical Study Based on Translation Tests of MTI Students. *Higher Education of Social Science*, 17(2), 39-46.

## Appendices

### Appendix I:

#### Source text 1:

《酉阳杂俎》天咫

太和中，鄭仁本表弟，不記姓名，嘗與一王秀才遊嵩山。捫蘿越澗，境及幽窈，遂迷歸路。將暮，不知所之。徒倚間，忽覺叢中鼾睡聲。披藜窺之，見一人布衣，衣甚潔白，枕一襪物，方眠熟。即呼之曰：“某偶入此徑，迷路，君知向官道否？”其人舉首略視，不應，復寢。又再三呼之，乃起坐，顧曰：“來此！”二人因就之，且問其所自。其人笑曰：“君知月乃七寶合成乎？月勢如丸，其影，日燦其凸處也。常有八萬二千戶修之，予即一數。”因開襪，有斤鑿數事，玉屑飯兩裹，授予二人，曰：“分食此，雖不足長生，可一生無疾耳。”乃起，與二人指一支徑：“但由此，自合官道矣。”言已，不見。

#### Source text 2:

黃耳

《述異記》祖沖之

陸機少時，頗好獵。在吳，有家客獻快犬，名曰黃耳。機後仕洛，常將自隨。此犬黠慧，能解人語。又嘗借人三百裏外，犬識路自還，一日至家。機羈官京師，久無家問，因戲犬曰：“我家絕無書信，汝能齎書馳取消息不？”犬喜搖尾作聲應之。機試為書，盛以竹筒，系之犬頸，犬出驛路，疾走向吳。機則入草噬肉取飽。每經大水，輒依渡者，弭耳掉尾向之，其人憐愛，因呼上船。載近岸，犬即騰上以速去，先到機家口，銜筒作聲示之。機家開筒取書，看畢，犬又向人作聲，如有所求；其家作答書，內筒，復系大頸，犬既得答，仍馳還洛。計人程五旬，而犬往還裁半月。後犬死，殯之，遣送還葬機村，去機家二百步，聚土為墳。村人呼為黃耳冢。

## Appendix II English versions translated by DeepL, GPT-3.5 and human translators.

---

### TEXT 1:

---

#### DEEPL

Tianhong of the Youyang *Miscellany Chopping Ground*

- In the middle of the Taihe period, Zheng Renben's cousin, whose name he does not remember, tried to visit Songshan Mountain with a Wang Xiucan. He crossed the streams from the pineapples to the mountains, and lost his way back to his home. At dusk, I did not know where to go. While leaning on the ground, I suddenly felt the sound of snoring in the bushes. Phi Niccuo peeped, see a man dressed in cloth, clothing very white, pillow a quilt, square sleep. I called out to him and said, "I happened to enter this path and got lost, do you know the way to the government road?" The man raised his head and looked briefly, but did not, and went back to sleep. And again and again called, was up to sit, said: "Come here!" They asked him where he came from. The man laughed and said: "Do you know that the moon is a synthesis of seven treasures? The moon is like a pill, its shadow, the sun shines its convex place. Often 82,000 households to repair, I that a number." Because of the open turban, there are a number of things, jade chips rice two packages, awarded two people, said: "Share this food, although not enough to live forever, can be a lifetime without disease." Was up, and two people pointed to a path: "But this, since the official road." He said, and disappeared.(246 words)

#### GPT-3.5

##### "The Miscellaneous Records of Youyang" The Celestial Register

During the Taihe period, Zheng Renben, my cousin's name forgotten, once went to Mount Song with a scholar named Wang. They wandered through ravines and remote valleys, becoming lost and unsure of their whereabouts as dusk

approached. Resting against a tree, they suddenly heard the sound of someone snoring from within a thicket. Curious, they peered through the leaves and saw a man dressed in plain white clothes, sleeping soundly with a bundle serving as his pillow. Renben called out to him, saying, “We have accidentally strayed onto this path and lost our way. Do you know the direction to the official road?” The man raised his head momentarily, glanced briefly, but made no response, and went back to sleep. Renben called out to him several more times until he finally woke up, sat up, and said, “Come here!” The two approached him and asked where he came from. The man smiled and said, “Do you know that the moon is formed by the combination of seven treasures? Its shape is like a sphere, and its reflection shines brightly on its convex parts. I am just one of the inhabitants among the 82,000 households living there.” He then opened his bundle, revealing several small fragments of jade and some rice that were wrapped within. He handed them to the two men and said, “Eat this. Although it may not grant you immortality, it will ensure a lifetime free of illness.” Afterward, he rose and pointed to a particular path, saying, “Just follow this, and it will lead you back to the official road.” Having said that, he disappeared from their sight. (279 words).

## HUMAN TRANSLATORS

### A Repairman from the Moon

#### *You Yang Za Zu (The Miscellaneous Record of You Yang)*

In a year between 827 and 835 (China’s Tang Dynasty), Zheng Renben’s cousin and his friend Wang once visited Mt. Song in central China. By crossing secluded valleys and running brooks, the two gentlemen were so fascinated by the spectacular views that finally they got lost. It was about sunset, and they didn’t know their whereabouts. Without knowing what to do, they just stood where they were.

Suddenly they heard someone’s loud snore. Pulling aside the bush branches, they found a man in white soundly sleeping with a package under his head. Then the two friends hurriedly stepped forward to wake him up and asked for help, “Sir, we accidentally came to this place and got lost. Could you tell us where the highway is?” The strange man raised his head and peered for a while. Without any reply, he went to sleep again. Once again the two gentlemen woke him up, and this time the strange man got up, calling them to move closer. Thus they came closer and asked the man in white where he was from.

Smiling, the strange man replied, “do you know that the moon consists of 7 different elements? It’s a sphere, and the moonlight is actually sunlight reflected by its mountains and peaks. There’re altogether 82000 households repairing the moon and I’m one of them.” Opening up his package, the repairman showed them his various tools as well as two boxes of “jade rice”. He then offered the visitors the meal and explained, “please share my food. Although it can not let you become immortal, it can definitely make you healthy for the rest of your life.” Standing up, the repairman pointed at a lane and said, “you just take this route and the highway is not far away.” After saying that, the man in white suddenly vanished. (320 words).

---

## TEXT 2:

---

### DEEPL

#### DEEPL: Yellow Ear

##### Zu Chongzhi, The Recounting of Anomalies

When Lu Ji was young, he was a good hunter. When he was in Wu, a family guest offered him a fast dog named Yellow Ear. When Lu Ji was in Wu, a guest of his family offered him a fast dog named Huang Er, which he often accompanied. The dog was very smart and could understand people’s language. He also borrowed a dog from someone who was 300 miles away, and the dog knew the way to return himself and arrived home in one day.

The machine was detained in Beijing, long time no home to ask, so he played the dog said: “My home absolutely no letters, you can write a letter to take the news not?” The dog responded by wagging its tail. I tried to write a book and put it in a bamboo tube and tied it to the dog’s neck. The dog went out to the courier road and drove to Wu. When he was hungry, he would go into the grass and eat meat to get satiated. Every time he passed through a big water, he would often rely on the ferryman, and then he would turn his ears and drop his tail to the people, who took pity on him and called him onto the boat. Carrying close to the shore, the dog is to vacate to go quickly, first to the mouth of the machine family, title tube for the sound to show. The machine family opened the tube to take the book, read it, the dog again to the people, such as the voice of the request; his family to answer the book, inside the tube, and tie the big neck, the dog has been answered, and still speeding back to the Luo. The dog was able to answer the question and still traveled to Luo. It took the dog half a month to travel back and forth while the man traveled for fifty years.

Later, the dog died, funeral, sent back to be buried in the machine village, to the machine home 200 paces, gathered soil for the grave. The villagers called it the Yellow Ear Mound. (366 words).

### GPT-3.5

#### GPT-3.5: “Huang’er”

From “Records of Strange Tales” by Zu Chongzhi

During his youth, Lu Ji had a strong interest in hunting. While he was in Wu, a guest from a family presented him with a swift hound named Huang’er. After Lu Ji later started his career in Luo, the dog always accompanied him. This dog was clever and could understand human speech. On one occasion, Lu Ji borrowed something from a person who lived 300 miles away. Huang’er memorized the route and returned on his own, arriving back home in a single day.

When Lu Ji was serving as an official in the capital city, he had been away from his family for a long time with no news. In jest, he said to the dog, “There has been no correspondence from my family. Can you carry a message and swiftly deliver news?” The dog happily wagged its tail and made sounds in response. Lu Ji decided to test it by writing a letter, which he placed inside a bamboo tube and tied around the dog’s neck. The dog set off on the post road, running swiftly toward Wu. When hungry, it would enter the grass, catch a small animal, and eat to satisfy its hunger. Whenever it came across a large body of water, it would find someone crossing and tilt its ears while wagging its tail, seeking their help. Out of compassion, the person would then call the dog onto the boat. When reaching a close distance to the shore, the dog would leap off to speed its way, arriving at Lu Ji’s doorstep first, carrying the tube and making sounds to indicate its arrival. Lu Ji’s family would then open the tube, read the letter, and in response, write a reply, place it in the tube, and tie it securely around the dog’s neck. Once the dog received the reply, it would swiftly return to Luo. The whole journey round trip took about fifty days for a person, while the dog would complete it in half a month.

After the dog passed away, Lu Ji had it properly prepared and sent back for burial in his hometown. The grave was made by piling soil just 200 steps away from Lu Ji’s residence, and the villagers named it the Tomb of Huang’er. (383 words).

### HUMAN TRANSLATORS

#### “Yellow Ears” - A Legendary Messenger Dog

*A Collection of Strange Tales*

Zu Chongzhi

Lu Ji (261-303 AD) was a famous poet in China’s West Jin Dynasty. As a young man, he was a huge fan of hunting. When he lived in the Shire of Woo, one tenant of the Lu family presented him a hound named Yellow Ears. Then the poet got a position at central government and moved to the nation’s capital. Of course that loyal dog accompanied him. The dog was so smart that it could even understand human language. Lu ever lent the dog to a friend and his friend took the dog on a trip. The clever creature was not deterred by 100 miles’ distance from home. Instead, following the same path, it only took Yellow Ears one day to come back home.

As a government official, Lu could not leave the capital city without permission. What was worse, communication with his family was extremely difficult due to inadequate postal system at that time. Thus Lu said jokingly to his dog, “For such a long period that I did not hear anything from my family. Could you do me a favor to send a letter to my family and carry their reply back to me?” Wagging its tail, the dog joyously barked as if it was replying “yes!” Lu tentatively wrote a letter, sealed it in a bamboo tube, and tied the tube around the hound’s neck. Yellow Ears followed the post road and ran fast towards the Shire of Woo. When the dog became hungry, it would hunt for some small animals in bush and ate their meat. The post road was often cut off by broad rivers. Then the hound had to seek help from ferry boats. By moving down yellow ears and wagging tail, the lovely dog gained sympathy from every boatman. In such a way the hound got on board and crossed rivers. Right before the ferry boat was anchored, Yellow Ears would jump off and rushed away. When it arrived at Lu’s old house, the dog barked while biting the bamboo tube in its mouth, implicating that there was something important inside the tube. Reading its gesture language, the family members opened the tube and took out the letter. When they finished reading, the dog barked again as if it was requesting for a reply. Therefore, the Lu family would like to follow suit: composing a reply letter, sealing it in the same tube, and tying it around the dog’s neck. Once the hound got the reply letter, it immediately started its long return journey. At that time, it usually took an average mailman 50 days to finish the task, while it took only the magic dog 15 days or so! Lu gave his messenger dog a lavish funeral after it died years later by burying it in his hometown village. The dog’s tomb was just 200 yards away from Lu’s house. The high grave mound was quite obvious and fellow villagers called it the Tomb of Yellow Ears. (510 words).

## Appendix III Post-edited versions by GPT-3.5

---

### TEXT 1:

---

#### DEEPL(P)

During the Taihe period, Zheng Renben's cousin, whose name he cannot recall, embarked on a visit to Songshan Mountain with a companion named Wang Xiucai. While crossing streams and wandering through the pineapples and mountains, they unfortunately lost their way back home. As dusk settled, they found themselves utterly disoriented. Leaning on the ground in despair, they suddenly heard the sound of snoring emanating from the nearby bushes. Curious, they peered through the foliage only to discover a man dressed in white clothes, sleeping soundly with a pillow and quilt. Seeking guidance, Zheng Renben's cousin called out to the man, explaining their predicament and asking if he knew the way to the main road.

The man stirred slightly and briefly glanced their way before returning to his slumber without uttering a word. Undeterred, they persisted in their appeals, and eventually, he sat up and beckoned them to approach. In response to their inquiry about his origin, the man chuckled and replied, "Do you know that the moon is a fusion of seven treasures? It resembles a pill, with its shadow akin to a convex surface illuminated by the sun. Every 82,000 households often contribute to its preservation, and I am but a humble contributor."

With an open turban, he revealed several objects, including two bags of rice adorned with jade chips, which he handed to the two individuals. He spoke, saying, "Share this food. While it may not grant eternal life, it will ensure a lifetime free from illness." They rose to their feet, grateful for the gift, and the man pointed them towards a path saying, "Follow this trail, it leads to the official road." Having shared his wisdom and generosity, he vanished from sight. (286 words).

#### GPT-3.5(P)

In the era of Taihe, Zheng Renben, my cousin whose name eludes me, embarked on a journey to Mount Song accompanied by the scholar Wang. As they traversed through deep ravines and secluded valleys, they gradually lost their bearings, becoming engulfed in uncertainty as the approaching dusk cast shadows around them. Seeking respite, they leaned against a tree, when suddenly the distinct sound of snoring reached their ears from within a thicket. Intrigued, they peered through the rustling leaves, and there before them lay a man, clad in plain white garments, sound asleep with a bundle serving as his pillow. Renben called out to him, explaining their predicament, "We have inadvertently strayed onto this path and are now lost. Could you kindly guide us back to the official road?" The man briefly lifted his head, took a cursory glance, and without uttering a word, returned to his slumber. Undeterred, Renben persistently called out to him until at last he stirred awake, sitting up and beckoning, "Come here!" The two approached him with curiosity, inquiring about his origins. The man's smile revealed his reply, "Do you know that the moon is composed of a synthesis of seven treasures? Its spherical shape reflects luminously upon its convex surface, illuminating the night sky for all to admire. I am merely one resident among the 82,000 households that coexist there." With that, he unsealed his bundle, unveiling several fragments of jade and packets of rice. He extended them to the two men, remarking, "Partake in this sustenance. Although it cannot grant you eternal life, it will ensure a lifetime free from affliction." Having shared his wisdom and generosity, he rose to his feet, pointing intently at a specific path, "Follow this way, and it shall guide you back to the official road." Uttering those words, he vanished from their sight. (306 words).

#### HUMAN TRANSLATORS(P)

##### A Repairman from the Moon

• You Yang Za Zu (The Miscellaneous Record of You Yang)

During the Tang Dynasty, in a year between 827 and 835, Zheng Renben's cousin and his friend Wang embarked on a visit to Mount Song in central China. As they journeyed through secluded valleys and crossed babbling brooks, they were captivated by the mesmerizing scenery, but their fascination eventually led them astray. As the sun began to set, they found themselves lost and unaware of their current whereabouts. Uncertain of their next move, they stood there, at a loss.

Suddenly, they were startled by the sound of loud snoring. Carefully pushing aside the branches, they discovered a man dressed in white soundly asleep, using a package as a makeshift pillow. Eagerly, they approached him, shaking him awake, and beseeched, "Sir, by chance we have ended up in this place and lost our way. Can you please guide us to the nearest highway?" The mysterious man raised his head briefly, gazing for a moment, but offered no response, and went back to sleep. Undeterred, the two gentlemen roused him once more, and this time, the enigmatic man sat up, motioning



for them to come closer. They approached him and inquired about his origin.

With a smile, the peculiar man responded, “Are you aware that the moon is composed of seven distinct elements? It is a spherical entity, and its luminosity is actually sunlight reflecting off its mountains and peaks. There are a total of 82,000 households involved in repairing the moon, and I am one of them.” He then opened his package, showcasing his array of tools, along with two boxes of “jade rice.” Extending his offering, he invited the visitors to partake in the meal, explaining, “Please enjoy this food. While it may not bestow immortality upon you, it will certainly ensure a healthy life for the duration of your existence.” Rising to his feet, the repairman pointed towards a path and said, “Simply follow this route, and you will soon reach the nearby highway.” Having spoken those words, the man in white suddenly vanished. (350 words).

---

## **TEXT 2:**

---

### **DEEPL(P)**

#### **Yellow Ear: The Extraordinary Tale of Zu Chongzhi**

In his youth, Lu Ji possessed excellent hunting skills. During his time in Wu, a guest of his family gifted him a remarkable and swift dog named Yellow Ear, or Huang Er as it was known. Lu Ji formed a close bond with this intelligent canine, who demonstrated an uncanny understanding of human language. There was even an instance when Lu Ji borrowed a dog from someone located 300 miles away, and astonishingly, the dog found its own way home in a single day.

One day, while Lu Ji was away from home in Beijing and unable to send any correspondence, he whimsically asked the dog, “Since I’m unable to send any letters from home, can you write one to share the news?” The dog responded by wagging its tail, seemingly acknowledging the request. Inspired by this interaction, Lu Ji proceeded to write a message, which he placed inside a bamboo tube and tied securely around the dog’s neck. The dog set off on a journey along the courier road, making its way back to Wu.

During its expedition, the dog displayed remarkable resourcefulness. When hunger struck, it would venture into the grass and consume meat to satisfy its appetite. When encountering large bodies of water, it often relied on the ferryman’s compassion, tilting its ears and lowering its tail to garner sympathy and secure passage on boats. As it approached the shore, the dog was quick to disembark, making a beeline for the home of Lu Ji’s family. It signaled its arrival by clenching the tube in its mouth.

The family eagerly opened the tube, retrieved the letter, and read its contents. The dog, once again, communicated its desire to receive a response from the family, prompting them to compose a reply. They sealed the letter within the tube, fastened it securely to the dog’s neck, and bid it farewell as it embarked on its swift return journey to Lu Ji. The remarkable canine completed the task of delivering messages, a feat that took the dog a mere two weeks, while it would have taken a human messenger fifty years to accomplish.

Tragically, the dog eventually passed away. Its funeral procession escorted its remains back to the village where Lu Ji resided, and it was laid to rest in the Machine village. Located just 200 paces from Lu Ji’s home, the villagers came to recognize the dog’s resting place as the Yellow Ear Mound, commemorating the faithful companion who had amazed them all. (422 WORDS).

---

## **GPT-3.5(P)**

---

### **“Huang’er”**

#### **From “Records of Strange Tales” by Zu Chongzhi**

During his youth, Lu Ji had a strong passion for hunting. While he was in Wu, a guest from a prominent family gifted him a swift hound named Huang’er. From then on, Huang’er faithfully accompanied Lu Ji throughout his career in Luo. This remarkable dog possessed keen intelligence and an understanding of human speech. On one occasion, Lu Ji borrowed an item from someone living 300 miles away. Astonishingly, Huang’er memorized the entire route and independently returned home within a single day.

During Lu Ji’s tenure as an official in the capital city, he endured an extended period of separation from his family without any news. In a moment of jest, he remarked to the dog, “There has been no correspondence from my family. Could you carry a message and swiftly deliver some news?” The dog responded with enthusiastic tail wagging and sounds of affirmation. Intrigued, Lu Ji decided to put it to the test by writing a letter, which he enclosed in a bamboo tube and fastened securely around the dog’s neck. Huang’er embarked on the post road, swiftly dashing towards Wu.

Whenever hunger struck, it would venture into the grass, catch a small animal, and satisfy its appetite. Whenever Huang'er came across a large body of water, it would seek assistance by approaching someone crossing, tilting its ears while wagging its tail. Moved by compassion, the person would then invite the dog onto the boat. As they neared the shore, Huang'er would leap off, eager to speed its way and arrive at Lu Ji's doorstep ahead of everyone else. Carrying the bamboo tube and signaling its arrival through sounds of excitement, the dog would play its role as a trusted messenger. Lu Ji's family would then open the tube, read the letter, and craft a response, securing it within the tube and tying it around Huang'er's neck. Once the dog received the reply, it would swiftly return to Luo. The entire round trip would take an average person about fifty days, but Huang'er managed to complete it in just half a month.

After Huang'er passed away, Lu Ji ensured the dog received proper preparations before being sent back to his hometown for burial. A grave was created by heaping soil a mere 200 steps away from Lu Ji's residence, and the villagers named it the Tomb of Huang'er in honor of their beloved companion. (405 WORDS).

## HUMAN (P)

### **“Yellow Ears” - The Legendary Messenger Dog**

A COLLECTION OF EXTRAORDINARY TALES

BY ZU CHONGZHI

Lu Ji (261-303 AD) was a renowned poet during China's West Jin Dynasty. In his youth, he had a profound passion for hunting. When he resided in the Shire of Woo, a member of the Lu family bestowed upon him a hound named Yellow Ears. As Lu later secured a position in the central government and relocated to the nation's capital, this faithful dog remained by his side. Yellow Ears possessed remarkable intelligence and could even comprehend human language. Lu once lent the dog to a friend, who took it on a trip. The clever creature was undeterred by the distance of 100 miles from home. Instead, faithfully following the same path, it returned home in just a single day.

As a government official, Lu was not permitted to leave the capital city without authorization. Furthermore, communicating with his family was exceptionally challenging due to the inadequate postal system of the era. Therefore, Lu jokingly said to his dog, “It has been so long since I've heard anything from my family. Could you do me a favor and deliver a letter to them, bringing back their reply?” With a wag of its tail, the dog joyously barked, as if affirming “yes!” Lu cautiously wrote a letter, sealed it in a bamboo tube, and attached the tube securely around the hound's neck. Yellow Ears followed the designated mail route, running swiftly towards the Shire of Woo. Whenever the dog grew hungry, it would skillfully hunt small animals in the underbrush and feast on their meat. The mail route often intersected with broad rivers, forcing the hound to seek assistance from ferry boats. By bowing its head and wagging its tail, the endearing dog garnered sympathy from every boatman, resulting in its safe passage across the rivers. Just before the ferry boat reached its destination, Yellow Ears would leap off and rush away eagerly. When the dog arrived at Lu's old house, it barked while clutching the bamboo tube in its mouth, indicating that something important was contained inside. Interpreting the dog's gestures, the family members opened the tube and retrieved the letter. After reading its contents, the dog barked again, as if imploring for a reply. Prompted by this request, the Lu family took the cue and composed a reply letter, sealing it in the same tube and fastening it around the dog's neck. Once the faithful hound received the reply, it immediately embarked on its arduous journey back. While it typically took an average mailman around 50 days to fulfill such a task, the extraordinary dog completed the mission in a mere 15 days or so! Years later, when the dog passed away, Lu honored his loyal messenger by giving it a grand funeral in his hometown village. The dog's tomb, located a mere 200 yards from Lu's house, was distinguished by a prominent mound, earning it the local designation of the Tomb of Yellow Ears. (501 WORDS).