

TRANSLATION – WRITING – CHATGPT: A LINGUISTIC ANALYSIS¹

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This study focuses on the translation and writing output of the ChatGPT (version 3.5) artificial intelligence language model in several languages. According to some research results, ChatGPT performs competitively with translation products (e.g. Google Translate) for high-resource European languages, but lags significantly for low-resource languages such as Hungarian. In the present study, the language products of the two AI tools (ChatGPT, Google Translate) were analysed by translating different types of texts. Both tools turned out to have advantages and disadvantages, with the quality of the translation depending on the text to be translated (e.g. type of text, style, topic), the languages to be translated, and the purpose of the translation.

The study analyses the translation and writing performance of ChatGPT (version 3.5) through different text types, compared with the language products of Google Translate, taking into account the linguistic and stylistic characteristics of each text type: short introduction, cover letter, academic/technical text and literary text (poem). Different aspects of the linguistic data are analysed based on three languages (Hungarian, Italian, and English), with Hungarian as the reference language. The research aims to determine: (1) differences and similarities in the translation and writing of each type of text produced by the two AI tools; and (2) the characteristics that can be detected based on the analysis criteria, including spelling, lexical, grammatical, and pragmatic (language use) levels. The results of the analysis show that each type of text is produced in different linguistic qualities by the two AI tools (ChatGPT and Google Translate) created for different purposes.

Keywords: ChatGPT, Google Translate, translation, writing, text types, Hungarian, Italian, English

¹ This paper is based on a presentation delivered at a Translation Seminar (Seminario di traduzione ungherese) at the University of Padua in the spring of 2024 (within the framework of the Erasmus Teaching Mobility programme).

1. Introduction

This study aims to analyse the translation and writing outputs of the ChatGPT (version 3.5) artificial intelligence language model across several languages, with a particular focus on Hungarian. Some research suggests that while ChatGPT performs competitively with dedicated translation products such as Google Translate for high-resource European languages, it lags significantly behind for low-resource languages such as Hungarian (Jiao, Wang, Huang, Wang, Shi, Tu 2023; cf. Zijian, Váradi 2023). For this study, the translation capabilities, the language products of two AI tools, ChatGPT and Google Translate, were compared using various types of texts. Both tools exhibit strengths and weaknesses, with translation quality influenced by factors such as text type, style, subject matter, the languages involved, and the specific purpose of the translation.

2. ChatGPT and Google Translate

Large Language Models (LLMs) are trained with a large amount of linguistic data. They are able to generate meaningful sentences from specified words, even in different text types (e.g., poetry, emails, scientific/academic papers), and can also produce more sophisticated text. They use highly sophisticated artificial intelligence technology to analyse and reproduce natural language. By learning from language data available on the internet, they can create something similar to it. They can imitate human communication, answer complicated questions and perform complex linguistics tasks. The more databases they have at their disposal, the more accurate the text they can create. Language models can create convincing and sophisticated texts, but they cannot think for us. Therefore, the requests (prompts) must be given in the right way. To obtain valid and appropriate answers, the prompts must be as precise as possible. ChatGPT (Chat Generative Pre-Trained Transformer) is a LLM developed by OpenAI that needs prompts to guide it in the translation process. The style of the prompt affects the quality of the translation (Johnson et al. 2017; Fan et al., 2021, cited by Jiao, Wang, Huang, Wang, Shi, Tu 2023).

ChatGPT (Photo 1) and Google Translate are two different tools and can be used for different purposes. ChatGPT is a LLM trained to generate and interpret text, and to follow a prompt and give a detailed response (Jiao, Wang, Huang, Wang, Shi, Tu 2023, 1). Translation is just one of its many applications (Qiu, Duan, Cai 2023; Horine, Pozek, Butka 2023; Jiao, Wang, Huang, Wang, Shi, Tu 2023). Google Translate, unlike ChatGPT, is specifically designed for translation and usually produces good results.

As already mentioned, ChatGPT performs competitively with dedicated translation products, such as Google Translate, on high-resource European

languages, i.e. languages for which many resources are available for training, but in the case of low-resource or distant languages, it lags significantly behind (Jiao, Wang, Huang, Wang, Shi, Tu 2023). «With ChatGPT, you can customize translations to suit your specific needs and provide feedback on adjustments you'd love to see.» You can personalize ChatGPT's translations, creating unique translation contexts, and adjusting numerous other parameters (W1).² A study of several languages (but not English) compared the translation skills of the two AI tools and found that ChatGPT expertly converted colloquialisms, while Google Translate tended to provide more literal translations (which also potentially prevents cultural information from getting through). However, the free version of ChatGPT performed less impressively in many cases. For lesser-known languages and in other translation contexts, Google seemed to be the better translator (W3).³



Photo 1⁴ (W8)

2.1. Chat GPT and 'hallucination'

The analysis reported in the present study was performed on ChatGPT version 3.5. «Human analysis on Google Translate and ChatGPT suggests that ChatGPT with GPT-3.5 tends to generate more hallucinations and mis-translation errors while that with GPT-4 makes the least errors.» (Jiao, Wang, Huang, Wang, Shi, Tu 2023, 1). A query to a large language model such as ChatGPT will often be met with a response that is confident and coherent, but factually incorrect. This phenomenon, commonly referred to in the AI context as 'hallucination,' occurs when the model generates plausible but incorrect information. Gemini, another

² <https://www.makeuseof.com/how-to-translate-with-chatgpt/>

³ <https://www.pcmag.com/articles/google-translate-vs-chatgpt-which-is-the-best-language-translator>

⁴ https://e3.365dm.com/23/06/1600x900/skynews-chatgpt-openai-chatbot_6196963.jpg?20230623140443

AI system, explicitly warns users to check the accuracy of their responses, highlighting the importance of critically evaluating the information provided (W2).⁵ Hallucinations are widely recognized as a significant limitation of current LLMs, and substantial efforts are underway within the research community to address this issue (Lin, Guan, Zhang *et al.* 2024).

2.2. ChatGPT: its functionality and limitations

AI-based text generation tools offer several advantages, particularly in terms of speed and creativity. While these tools are not capable of replacing complex human cognitive processes, they can be valuable for specific tasks. Their utility includes generating text across different styles and registers, such as formal language, summarizing key points, or highlighting the essence of a text. Furthermore, they can assist with writing abstracts, titles, and notes, as well as suggesting questions for interviews and questionnaires. These tools also provide a useful resource for certain tasks, such as proofreading from a reader's perspective.

However, it is essential to recognise the limitations of such tools. AI-based text generation lacks a comprehensive understanding of the world, and its knowledge of factual information is often limited or outdated. As a result, it may provide contradictory or incorrect answers. Unlike search engines, AI tools are not designed to retrieve factual data and can make errors when used to generate complete texts. These errors may include monotony, repetition, grammatical errors, inappropriate word choice, and inappropriate language use. In addition, as noted above, AI models are prone to 'hallucination,' producing content that appears plausible but is factually incorrect. It is important to remember that the production of a well-structured text does not guarantee its accuracy, authenticity, or professional validity.

3. Methodology and data

This study examines the translation and writing capabilities of ChatGPT (version 3.5) by comparing its output across various text types with the language products of Google Translate. The analysis takes into account the linguistic and stylistic features unique to each text type. The texts examined include:

1. A cover letter, sourced from a Hungarian job portal.
2. An academic/technical text: an abstract from an academic paper.
3. A literary text (poem): a poem by the Hungarian poet János Pilinszky, translated into Italian.

⁵ <https://www.economist.com/science-and-technology/2024/02/28/ai-models-make-stuff-up-how-can-hallucinations-be-controlled>

The linguistic data for this study was drawn from authentic material, consisting of original texts available online. The analysis of different aspects of the linguistic data focuses on three languages: Hungarian, Italian, and English, with Hungarian treated as the reference language. The research aims to explore the following questions:

1. What are the differences and similarities in the translation and writing of each text type, produced by the two AI tools?
2. What specific linguistic features, such as spelling, lexical choice, grammatical structures, and pragmatic (language use) aspects, emerge from the analysis based on the analytic criteria?

Thus, the analysis focuses on examining Hungarian translations across various linguistic levels. The findings indicate that different text types are generated with varying degrees of linguistic quality by the two AI tools (ChatGPT and Google Translate), which have been designed for distinct purposes.

Before examining the translations produced by the two AI tools, I assessed the Hungarian language skills of ChatGPT (Figures 1, 2), along with other language models (Bard, Bing; Figure 2), through a brief task with specific instructions/prompts. The task involved a short introduction, using the same prompt (in Hungarian: “Bemutakoznál, légy szíves?” and in Italian: “Potresti presentarti, per favore?” – ‘Could you please introduce yourself?’). The prompt was posed using the informal “you”, which ChatGPT reciprocated in its response. ChatGPT provided a longer introduction in Hungarian than in Italian, as seen in the responses from both languages (Figure 1).

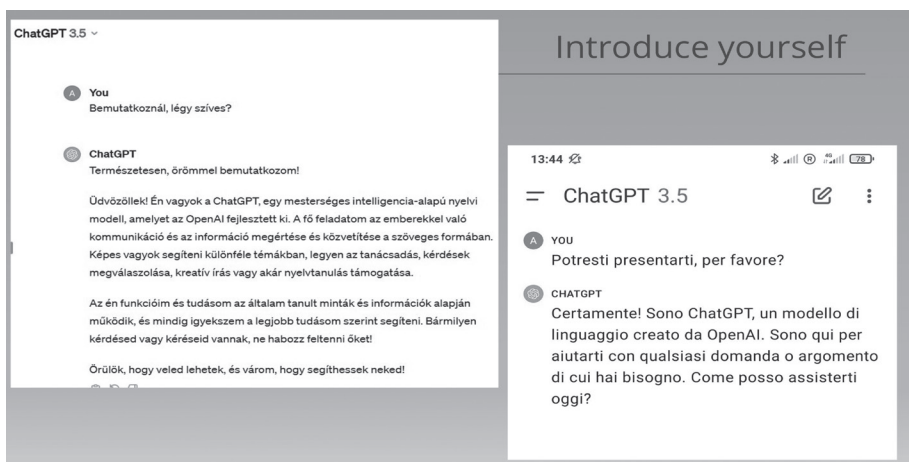


Figure 1

In testing ChatGPT's Hungarian language skills, I also aimed to evaluate how it handles 'small talk'-style conversations. When prompted with an everyday informal greeting, ChatGPT responded with a linguistic error, saying "Hogyan segíthetek?" ('How can I help you?') when the correct phrase in this context would be "Miben segíthetek?" (lit. 'In what can I help you?'). The likely cause of this mistake is that ChatGPT's English language proficiency is more advanced, which may influence how it generates responses in Hungarian.

- *Szia!*
hello
'Hello!'
- *Szia! **Hogyan** segíthetek ma?*
hello how help.POT.1SG today
*'Hello! **How** can I help [you] today?'*

The next short conversation began with the question "How are you?". In Hungarian, this phrase is not just a greeting but also a question that conveys the expectation of an answer. While ChatGPT responded appropriately, a few interesting aspects can be noted. Firstly, it chose a verb form ("Köszönöm, hogy érdeklődsz", lit. 'Thank you that you are interested') instead of the corresponding nominal construal ("Köszönöm az érdeklődést" 'Thank you for the interest'). Secondly, it used the "hogyan" 'how' interrogative pronoun instead of its shortened version "hogy" 'how', even though only the latter is appropriate in the context at hand.

- *Hogy vagy?*
how be.2SG
'How are you?'
- *Köszönöm, hogy **érdeklődsz!** Jól vagyok, köszönöm. És te?*
***Hogyan** vagy ma?*
thank.1SG that be.interested.2SG well be.1SG thank.1SG and you
how be.2SG today
'Thank you that you are interested. I am well, thank you. And you?
How are you today?'

To evaluate ChatGPT's Hungarian language skills, I also requested brief introductions from two other language models, Bard and Bing (Figure 2). For this task, I provided a more specific prompt, limiting the introduction to five sentences. The results were as follows.

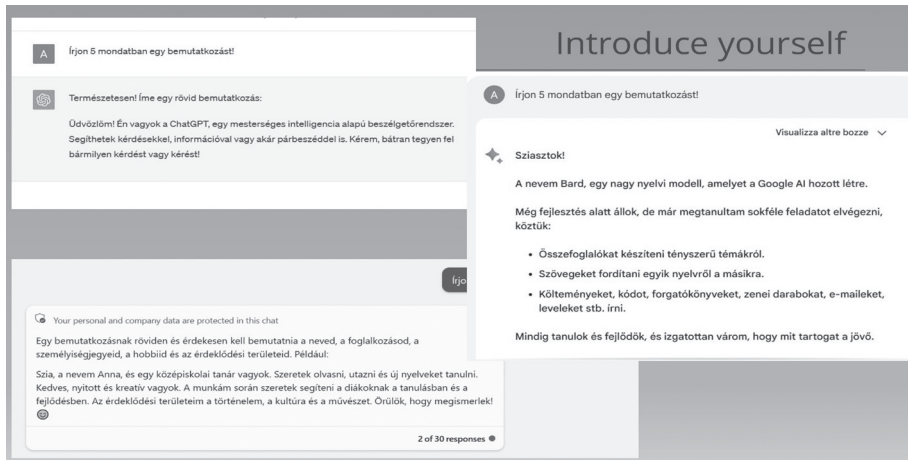


Figure 2

1. Hungarian introduction by ChatGPT (Figure 2): ChatGPT opted for a formal greeting, using “üdvözlöm” (‘welcome’). However, it included the phrase “kérem, bátran” (‘please feel free’), which is incorrect from a socio-pragmatic perspective, as it is neither typical nor polite in Hungarian. Additionally, there was a vocabulary error in the sentence “Segíthetek párbeszéddelel” (‘I can help with dialogue’).
2. Hungarian introduction by Bard (Figure 2): Bard used an informal greeting in the plural, “sziasztok” (‘Hi/Hello [folks]’), despite the request having been phrased in formal language (formal “you”). Moreover, by adopting the verb form “fejlődök” ‘I improve’, Bard employed a non-standard form, failing to use the more prestigious traditional first-person singular form “fejlődöm” ‘I improve’ that comes with the conjugation of so-called *-ik* verbs (including “fejlődik” ‘improve’).
3. Hungarian introduction by Bing (Figure 2): Similarly to Bard, Bing also used the informal greeting “szia” (‘hi’). Instead of introducing itself, Bing explained how to introduce oneself and provided an example: “Anna vagyok” (‘I am Anna’). This suggests that Bing did not fully grasp the prompt, as it only presented an example of an introduction rather than introducing itself.

4. Translation analysis: a linguistic approach

The analysis explores the translation outputs, highlighting differences and similarities observed at different linguistic levels in different text types. The

evaluation of these characteristics is based on specific criteria, including spelling, lexical choice, grammar, and pragmatic (language use) aspects. The text types analysed were: 1) a cover letter, 2) an academic/technical text, and 3) a literary text (poem).

4.1. First text type: cover letter

The first text analysed was a cover letter, a specific and practical type of document applicable in any language. I selected the text from a well-known Hungarian job portal⁶ for translation (W4). When I initially (in 2023) asked ChatGPT to write a cover letter, the Hungarian version did not fully grasp the task. I provided the same prompt in three languages (Hungarian, English, and Italian), and while it perfectly understood the request in English (“cover letter”) and Italian (“lettera di presentazione”), writing appropriate cover letters in both, it struggled with the Hungarian term (“motivációs levél”). Instead of producing a cover letter, it generated an inspirational, motivational message (“I would like to share some encouraging thoughts with you today.”). However, ChatGPT’s current Hungarian language capabilities have since improved and it now recognizes the correct meaning of this term.

The task involved translating a Hungarian cover letter into Italian. The distinct features of this type of text include specific vocabulary, contextual meaning, grammatical structures, formal/official style, and the typical format of a cover letter (the presence of such functional units as the greeting, introduction, and body; adherence to social norms). The translation was performed with two tools: 1) Google Translate and 2) ChatGPT (with the following prompt in Italian: “Potresti tradurre in italiano questo testo, per favore?” – ‘Could you translate this text into Italian, please?’). The original Hungarian text was the following cover letter, with analysed sections highlighted for analysis in the translations.

«Tisztelt Hölgyem / Uram!

*A Profession.hu oldalon **találkoztam** a kereskedelmi asszisztens pozícióra meghirdetett álláshirdetésükkel, amelyre **ezúton szeretnék** jelentkezni.*

*Jó üzleti érzékkel **rendelkezem**, gyorsan megértem az ügyfelek kéréseit, és **mindent megteszek**, hogy a legjobb **minőségű szolgáltatást biztosítsam** számukra. Személyközi kapcsolatok építésében és ápolásában is **erős vagyok**, szeretek **csapatban dolgozni**. Korábban kereskedelmi képviselőként és az **iparkamaránál is szereztem***

⁶ <https://www.profession.hu/motivacioslevel/gyakorlattal-szakasszisztens-kiserolevel>

értékelhető tapasztalatot és szakmai kapcsolatokat is, amelyek segíthetik az Önök cégének regionális terjeszkedését.
Közgazdászként végeztem, felsőfokon beszélek angolul és oroszul, valamint szlovákul is folyékonyan kommunikálok, napi szinten használom ezeket a nyelveket, szóban és írásban egyaránt.
Bízom benne, hogy lehetőség nyílik egy szakmai beszélgetésre, és személyesen is meggyőzhetem Önöket, hogy képzettségemmel, nyelvtudásommal, kapcsolatrendszeremmel és agilitásommal hogyan járulhatok hozzá cégük sikeresebbé válásához!

*Tisztelettel:
 Hajmási Linda»*

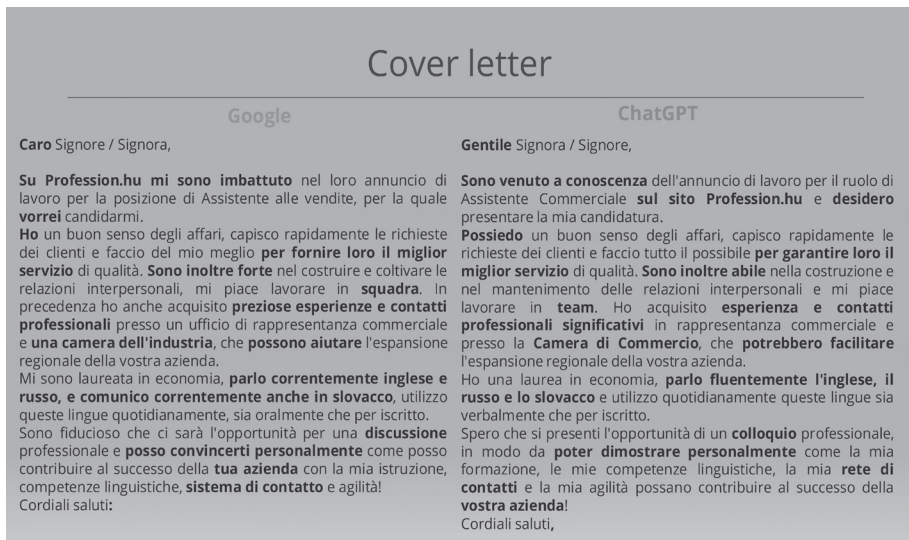


Figure 3

Figure 3 presents the two translation outputs, with the analysed terms highlighted in bold, just as in the original text. In what follows, the comparison of the two translations is conducted across various linguistic levels.

In punctuation, Google Translate makes an error at the end of the letter by following the Hungarian convention of using a colon after the final greeting in an official letter, rather than the international standard of using a comma. In terms of word usage and appropriate vocabulary choice, Google made more mistakes than ChatGPT. Let us examine a few examples of this type of error in the text: *Su*

Profession.hu (omission of a word, namely the definite article); in this context, ChatGPT uses the term *sul sito* 'on the website'; *mi sono imbattuto* 'I came across', while ChatGPT adopts a more sophisticated expression (*sono venuto a conoscenza* 'it came to my awareness'). In a text written in formal style, it is more appropriate to use the words *desidero* 'I wish' and *possiedo* 'I possess' as ChatGPT did (Google: *vorrei* 'I would like', *ho* 'I have'). ChatGPT used the term *per garantire* 'to guarantee' instead of *per fornire* 'to supply' (by Google). Google used some terms in literal translation, whereas ChatGPT found expressions which were more appropriate to the style of this text type: *sono inoltre forte* 'I am also strong' (ChatGPT: *abile* 'able'); *una camera dell'industria* 'an industry chamber' (ChatGPT: *la Camera di Commercio* 'the chamber of commerce'); *possono aiutare* 'they can help' (ChatGPT: *potrebbero facilitare* 'they could facilitate'); *una discussione professionale* 'a professional discussion' (ChatGPT chose the official term: *un colloquio* 'an interview'); *sistema di contatto* 'contact system' (ChatGPT: *rete di contatti* 'network of contacts'). In one case, ChatGPT considered the English term to be more appropriate (*in team*; Google: *in squadra* 'in team').

In terms of grammar, ChatGPT's choices seem to be more creative and appropriate to the context. By contrast, Google often follows the literal translation to create a sentence structure which corresponds to the original text, thus the translation is grammatically correct. Google translated the phrase *preziose esperienze e contatti professionali* 'precious experiences and professional contacts' by following the Hungarian version, while ChatGPT simplified the whole structure (*esperienza e contatti professionali significativi* 'significant experience and professional contacts'). In one case, ChatGPT simplified the structure of a complex sentence, avoiding possible repetitions (*parlo fluentemente l'inglese, il russo e lo slovacco* 'I speak English, Russian and Slovak fluently'), while Google translated it in the original version (*parlo correntemente inglese e russo, e comunico correntemente anche in slovacco* 'I speak fluently in English and Russian, and also communicate correctly in Slovak').

From a pragmatic point of view, it can be observed that the language products created by ChatGPT are more appropriate in terms of language use in the translations of the type of text analysed. By contrast, in the texts produced by Google, a literal translation is often used. Google translated the address form literally from the original Hungarian text (*caro* 'dear'), while ChatGPT chose the appropriate term for the given style (*gentile*, lit. 'gentle'). In the last paragraph of the cover letter, the phrase translated by ChatGPT fits the context better (*poter dimostrare personalmente* 'to be able to demonstrate in person'), whereas Google again used the literal translation of the original phrase with the inappropriate informal term (*posso convincerti personalmente* 'I can convince you in person'),

even though the original text used the formal style of the Hungarian language. In the pronominal form referring to the company, Google incorrectly translated the pronoun into the informal second person singular (*tua azienda* ‘your.INFORMAL firm’); ChatGPT, on the other hand, correctly selected the appropriate Italian term (*vostra azienda* ‘your.FORMAL firm’).

4.2. Second text type: academic/technical text

The second text type analysed was an academic abstract (W5),⁷ which contains specialized technical terms. The translation task involved translating the abstract from English to Hungarian. The original English version of the abstract is shown in Figure 4. Key characteristics of this type of text include its vocabulary, technical terminology, contextual meaning, and grammatical structure. The two tools used for the translation were 1) Google Translate and 2) ChatGPT (prompt in English: “Could you translate this text into Hungarian, please?”). The original text is provided in Figure 4, with the sections to be analysed highlighted in bold.

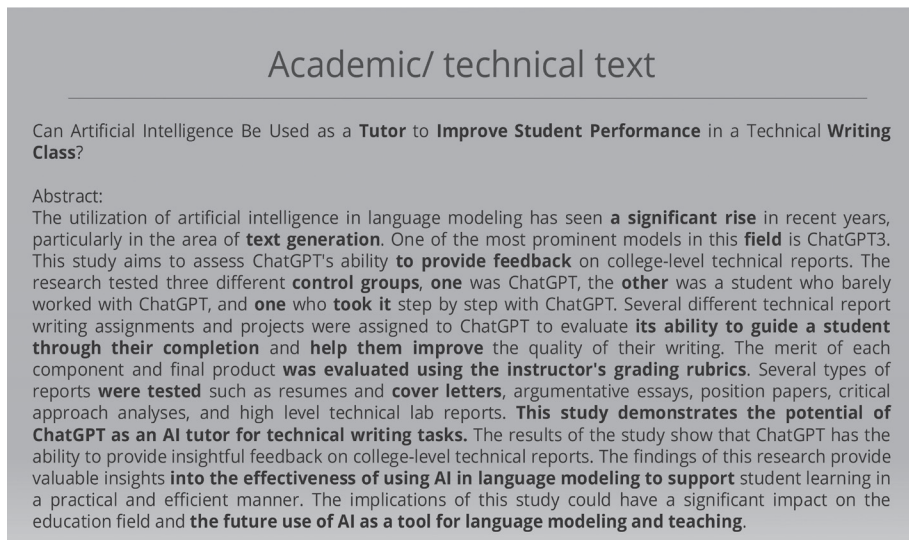


Figure 4

Presented below are the translations of the academic text generated by the two AI tools (ChatGPT and Google Translate), with the analysed parts highlighted in bold.

⁷ <https://papers.iafor.org/submission69667/>

1. Google Translate:

«Használható-e a mesterséges intelligencia **oktatóként** a tanulói teljesítmény **bizonyítására** egy műszaki **írásórán**?

A mesterséges intelligencia nyelvi modellezésben való felhasználása az elmúlt években **jelentősen megnőtt**, különösen a **szöveggenerálás** területén. Ezen a **területen** az egyik legjelentősebb modell a ChatGPT3. Ennek a tanulmánynak az a célja, hogy felmérje a ChatGPT azon képességét, **hogyan visszajelzést adjon** a főiskolai szintű technikai jelentésekről. A kutatás három különböző **kontrollcsoportot** tesztelt, az **egyik** a ChatGPT, a **másik** egy diák volt, aki alig dolgozott a ChatGPT-vel, és az **egyik**, aki lépésről lépésre **vette át** a ChatGPT-vel. Számos különböző technikai jelentésírási feladatot és projektet rendeltek a ChatGPT-hez, hogy felmérjék, **mennyire képes végigvezetni a hallgatót a befejezésükön**, és **segíti őket** írásaik minőségének **javításában**. Az egyes komponensek és végtermékek érdekeit **az oktatói osztályozási rubrikák segítségével értékelték**. Számos jelentéstípust **teszteltek**, például **önéletrajzokat és kísérőleveleket**, érvelő esszét, állásfoglalásokat, kritikai megközelítési elemzéseket és magas szintű műszaki laboratóriumi jelentéseket. **Ez a tanulmány bemutatja a lehetőségeket a ChatGPT AI oktatójaként technikai írási feladatokhoz**. A tanulmány eredményei azt mutatják, hogy a ChatGPT képes áttekintő visszajelzést adni a főiskolai szintű technikai jelentésekről. A kutatás eredményei értékes betekintést nyújtanak a **mesterséges intelligencia nyelvi modellezésben való alkalmazásának hatékonyságába**, amellyel gyakorlatias és hatékony módon támogatják a tanulók tanulását. A tanulmány következményei jelentős hatással lehetnek az oktatási területre és a mesterséges intelligencia **jövőbeni felhasználására nyelvi modellezési és tanítási eszközként**.»

2. ChatGPT:

«Lehet-e **az Mesterséges Intelligenciát** használni **tanítóként** a hallgatók teljesítményének **javítására** a technikai **írás órán**?»

Az mesterséges intelligencia alkalmazása a nyelvi modellezés területén **jelentős emelkedést mutatott** az elmúlt években, különösen a **szöveg generálás** terén. Ebben a **mezőben** az egyik legkiemelkedőbb modell a ChatGPT3. Ez a tanulmány azt célozza, hogy értékelje a ChatGPT képességét **visszajelzés nyújtására** egyetemi szintű technikai jelentésekhez. A kutatás három különböző **vezérlőcsoportot** tesztelt, az **egyik** ChatGPT volt, a **másik** egy diák, aki alig dolgozott a ChatGPT-vel, és **egy olyan** diák, aki lépésről lépésre **tanult** a ChatGPT-vel. Többféle technikai jelentésírási

feladatot és projektet adtak a ChatGPT-nek annak értékelésére, hogy **képes-e irányítani egy diákot a teljesítésük során, és segíteni nekik javítani** írásuk minőségén. Minden komponens és végső termék értékelése **az oktató értékelési rubrikái alapján történt**. Többféle jelentéstípus **lett tesztelve**, mint például **önéletrajzok és motivációs levelek**, érvelő esszék, álláspont-papírok, kritikai megközelítésű elemzések és magas szintű technikai laborjelentések. **Ez a tanulmány bemutatja a ChatGPT potenciálját egy AI segítőként a technikai írásfeladatokhoz**. A kutatás eredményei azt mutatják, hogy a ChatGPT képes mélyreható visszajelzést nyújtani egyetemi szintű technikai jelentésekhez. A kutatás eredményei értékes betekintést nyújtanak **az AI használatának hatékonyságába a nyelvi modellezés terén a hallgatók tanulásának** gyakorlati és hatékony támogatásában. A tanulmány következményei jelentős hatást gyakorolhatnak az oktatási területre és az AI jövőbeni **felhasználására nyelvi modellezés és oktatás eszközeként.**»

Table 1 provides a comparison of specific sections from the two Hungarian translations under analysis, with the translations displayed side by side in two columns: one by Google Translate and the other by ChatGPT.

Academic/ technical text	
Google	ChatGPT
a mesterséges intelligencia	az Mesterséges Intelligenciát
oktató	Tanító
a tanulói teljesítmény bizonyítására	a hallgatók teljesítményének javítására
írásóra	írás óra
jelentősen megnőtt	jelentős emelkedést mutatott
szöveggenerálás	szöveg generálás
területen	mezőben
hogy visszajelzést adjon	visszajelzés nyújtására
kontrollcsoport	vezérlőcsoport
egyik...másik... egyik diák	egyik...másik... egy olyan diák
vette át	tanult
mennyire képes végigvezetni a hallgatót a befejezésükön	képes-e irányítani egy diákot a teljesítésük során
segíti őket írásaik minőségének javításában	segíteni nekik javítani írásuk minőségén
az oktatói osztályozási rubrikák segítségével értékelték	az oktató értékelési rubrikái alapján történt

Academic/ technical text	
Google	ChatGPT
teszteltek	lett tesztelve
önéletrajzokat és kísérőleveleket	önéletrajzok és motivációs levelek
Ez a tanulmány bemutatja a lehetőségeket a ChatGPT AI oktatójaként technikai írási feladatokhoz.	Ez a tanulmány bemutatja a ChatGPT potenciálját egy AI segítőként a technikai írásfeladatokhoz.
a mesterséges intelligencia	az AI
nyelvi modellezésben való alkalmazásának hatékonyságába, amellyel...	használatának hatékonyságába a nyelvi modellezés terén a hallgatók tanulásának...
jövőbeni felhasználása nyelvi modellezési és tanítási eszközként	jövőbeni felhasználására nyelvi modellezés és oktatás eszközeként

Table 1

In the analysis that follows, the two translations are compared at different linguistic levels. Regarding orthography, there were a few errors in ChatGPT's translation of the original text. Even in the title of the text, there is an error in pronoun use, and first letters are capitalized as dictated by English (but not Hungarian) conventions (*Mesterséges Intelligenciát* – 'Artificial Intelligence.ACC'). In Google's translation, the term appears in the correct form (*a mesterséges intelligencia* 'Artificial Intelligence'). Compound words were also used correctly by Google (*írásóra* 'writing class', *szöveggenerálás* 'text generation') but not by ChatGPT, which wrote the words separately (errors: *írás óra, szöveg generálás*). The term *technical writing tasks* emerges differently in the two versions, with the literal translation provided by Google failing to interpret its meaning accurately in the given context (Google: *technikai írási feladatokhoz*; ChatGPT: *technikai írásfeladatokhoz*).

Regarding the vocabulary of the text to be translated, there were errors in both language products. In the case of Google Translate, the following terms were incorrectly selected: *a tanulói teljesítmény bizonyítására* 'for proving student performance' (ChatGPT's correct version: *a hallgatók teljesítményének javítására* 'for improving the performance of university students'); *egyik... másik... egyik diák* 'one of the students... another student... one of the students' (ChatGPT: *egyik... másik... egy olyan diák, aki* 'one of the students... another student... a student who'); *végigvezetni a hallgatót a befejezésükön*, lit. 'guide the student on their completion' (in Hungarian, this passage is unclear and difficult to interpret; ChatGPT: *irányítani egy diákot a teljesítésük során* 'instruct a student in the course of their completion'); *kísérőleveleket* (incorrect translation of 'cover letter'; ChatGPT: *motivációs levelek* 'cover letters'). Vocabulary errors have also been found in the text generated by ChatGPT: *tanító* ('Tutor'); Google: *oktató* ('university lecturer');

ebben a mezőben ('in this field'; the noun *mező* is inappropriate in this context); Google: *területen*); *vezérlőcsoport* (Google: *kontrollcsoport* 'control group'); *potenciál* 'potential' (literal translation; Google: *lehetőségek* 'opportunities'); *AI* (the correct Hungarian abbreviation: *MI*; Google's correct version: *mesterséges intelligencia*). In the following expression, both texts used the literal translation instead of the corresponding Hungarian expression (ChatGPT: *értékelési rubrikái* 'evaluation rubrics', Google: *osztályozási rubrikák* 'grading rubrics').

In terms of the grammatical structure of the given text, in many cases the translation generated by Google Translate was more appropriate, while ChatGPT translated complex structures less smoothly. Here are a few examples of this: *visszajelzés nyújtására* 'for the provision of feedback' (overly dense structure; Google: *hogyan visszajelzést adjon* 'to give feedback'); *segíteni nekik javítani írásuk minőségén* 'to help them improve the quality of their writing' (one of the verbs must be conjugated instead of using two infinitives; Google: *segíti őket írásaik minőségének javításában* 'it helps them improve the quality of their writing'); *lett tesztelve* 'was tested' (passive form; Google: *teszteltek* 'they tested'); *a hallgatók tanulásának... támogatásában* 'in providing support for students' learning' (Google with a subordinate clause: *hatékonyságába, amellyel... támogatják a tanulók tanulását* 'into the efficiency [of...], with which they support students' learning). However, in some cases ChatGPT chose the more appropriate grammatical form or sentence structure: *az oktató értékelési rubrikái alapján történt* 'was performed on the basis of the lecturer's evaluation rubrics' (Google: *az oktatói osztályozási rubrikák segítségével* 'with the help of the grading rubrics of the lecturer'); *bemutatja a ChatGPT potenciálját egy AI segítőként* 'presents ChatGPT's potential as an AI assistant' (correct word order and sentence structure; Google: *bemutatja a lehetőségeket a ChatGPT AI oktatójaként* 'presents opportunities as an instructor of ChatGPT AI'); *tanult a ChatGPT-vel* 'studied with ChatGPT' (in Google's translation, the direct object of the sentence is missing: *vette át...* 'adopted'); *jövőbeni felhasználására* 'for its future use' (in Google's translation, the case suffix is missing: *jövőbeni felhasználása* 'its future use'); *(a) nyelvi modellezés és oktatás eszközeként* 'as a tool of language modelling and teaching' (Google: *nyelvi modellezési és tanítási eszközként*); *az AI használatának hatékonyságába a nyelvi modellezés terén* 'into the efficiency of AI use in the area of language modelling' (Google: *a mesterséges intelligencia nyelvi modellezésben való alkalmazásának hatékonyságába* 'into the efficiency of applying Artificial Intelligence in language modelling').

Regarding the use of language and style, an example can be mentioned where ChatGPT opted for an extended expression instead of a simple structure: *jelentős emelkedést mutatott* 'showed a significant increase' (Google: *jelentősen megnőtt* 'increased significantly').

4.3. Third text type: literary text (poem)

The third type of text analysed was a literary work, specifically a Hungarian poem entitled *Halak a hálóban*⁸ 'Fish in the Net' by the 20th century Hungarian poet János Pilinszky (W7). The original version of the poem is presented in Figure 5 (the first text). The defining features of this type of text include poetic freedom, the poet's unique style, non-literal translation, complex rhetorical devices, expressive language, rhythm, mood, atmosphere, vocabulary, and grammatical structure. The translation task involved translating the poem from Hungarian into Italian. The two tools used for the translation were 1) Google Translate and 2) ChatGPT (prompt in Italian: "Potresti tradurre in italiano questo testo, per favore?" – 'Could you translate this text into Italian, please?'). For comparative purposes, a professional literary translation⁹ by Richárd Janczer was also included (W6). The original Hungarian poem and its literary translation are shown in Figure 5, with the analysed sections highlighted in bold.

Literary text: poem	
Pilinszky János: Halak a hálóban	Literary translation: Pesci nella rete
<p>Csillaghálóban hányódunk partravont halak, szánk a semmiségbe tátog, száraz úrt harap. Suttogón hiába hív az elveszett elem, szűrő kövek, kavicsok közt fuldokolva kell egymás ellen élünk-halunk! Szívünk megremeg. Vergődésünk testvérünket sebzi, fojtja meg. Egymást túlkiáltó szónkra visszhang sem felel; őldökölünk és csatázunk nincs miért, de kell. Bűnhődünk, de bűnhődésünk mégse büntetés, nem válthat ki poklainkból semmi szenvedés. Roppant hálóban hányódunk s éjfélkor talán étek leszünk egy hatalmas halász asztalán.</p>	<p>Ci dibattiamo nella rete stellare pesci spiaggiati, boccheggiamo nel nulla, le nostre bocche mordono spazio secco. Chiama invano, con un sussurro, l'elemento smarrito, tra pietre affilate e sassi è necessario soffocando viveremore l'uno contro l'altro! Il cuore rabbrivisce. Il nostro dibatterci ferisce, soffoca i nostri fratelli. Alla parola urlata che copre la parola altrui nemmeno l'eco risponde; non abbiamo motivo di ammazzarci e lottare eppure è necessario. Ci castigiamo, ma il nostro castigarci non è castigo, non può redimerci dai nostri inferni alcuna sofferenza. Ci dibattiamo in una rete immensa e a mezzanotte, forse, saremo vivanda sull'enorme tavola imbandita di un pescatore.</p>

Figure 5

⁸ <https://konyvtar.dia.hu/html/muvek/PILINSZKY/pilinszky00001/pilinszky00007/pilinszky00007.html>

⁹ <https://www.andergraundrivista.com/2021/03/09/pilinszky-janos-luomo-sospeso-nellassenza-di-dio/>

The results of the translation produced by the two AI tools are shown in the following figure (Figure 6; with analysed parts highlighted in bold in the translations).

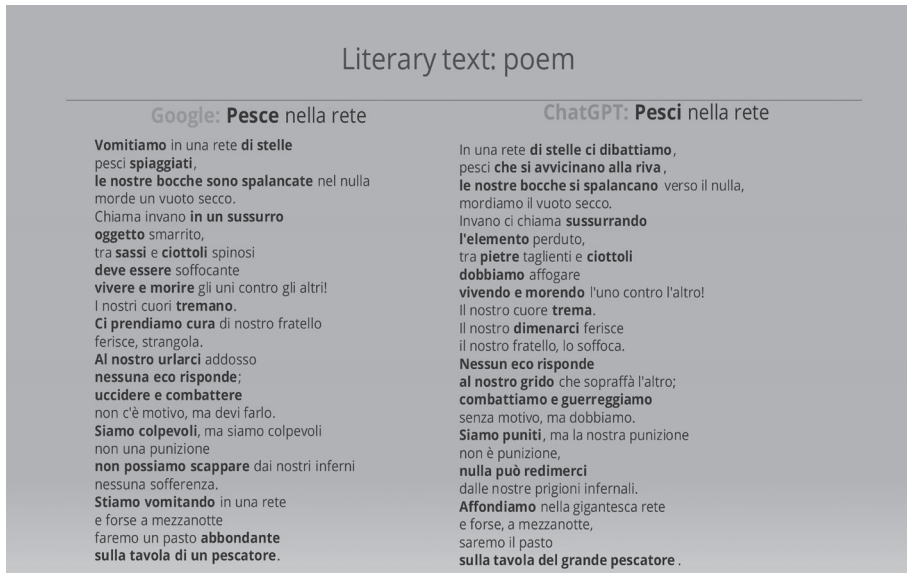


Figure 6

As mentioned above, literary texts represent a special category of writing, making it worthwhile to compare the translations of the poem, those generated by Google Translate and ChatGPT, with a professional literary translation. It is important to note that each translation maintains the form and rhythm of the original poem. The observations in the following section are numbered according to their order in the text, with analysed parts highlighted in bold in the translations (Figures 5, 6).

(1) In the title, the professional literary translation and ChatGPT used the original plural form: *pesci* ‘fish.PL’ (in contrast with Google: *pesce* ‘fish.SG’).

(2) There is an interpretation error right at the beginning of the text: Google Translate chose the wrong meaning for *hányódunk*: *vomitiamo* (‘we vomit’). ChatGPT, on the other hand, interpreted the expression correctly (*ci dibattiamo*).

(3) In the first expression, the professional literary translation uses a different structure (adjective: *stellare* ‘stellar’) compared to the versions of the two AI tools (*di stelle*).

(4) The literary translation and Google Translate applied the same term (*spiaggiati* 'taken to the shore'), while ChatGPT instead of using one word, described the whole situation expressed in the original Hungarian word (*partravont*).

(5) The meaning of the original expression (*a szánk ... tátog* 'our mouths are gaping') is condensed into a single expressive word (*boccheggiamo*) in the literary translation, which makes for a more sophisticated choice. By contrast, the two AI tools translated the phrase literally (Google: *le nostre bocche sono spalancate*, ChatGPT: *le nostre bocche si spalancano*).

(6) Google's choice (*in un sussurro* 'in a whisper') of the onomatopoeia '*suttogón* 'whisperingly' corresponds to the literary translation (*con un sussurro* 'with a whisper'). By contrast, ChatGPT's translation uses the gerund form (*sussurando*).

(7) The Hungarian word *elem* has been interpreted in two ways in the translated text: as *element* 'element' (in the literary translation and by ChatGPT) and as *oggetto* 'object' (by Google Translate).

(8) To translate the words *kövek* 'stones', *kavicsok* 'pebbles' that appear in the original poem, the three translations alternated with three words: *pietre*, *sassi*, *ciottoli* ('stones, rocks, pebbles').

(9) The original first-person plural (*kell...élnünk-halnunk* 'we must... live and die') is used in the translation produced by ChatGPT (*dobbiamo...vivendo e morendo*) and the two verbs are put into the gerund form. The literary translation and Google Translate render the meaning with an impersonal expression: the first one uses poetic freedom to write the infinitives in one word, thus conveying the connected version of the original expression (*é necessario...viveremorire*); while Google places the two infinitives in a coordinate phrase (*deve essere...vivere e morire*).

(10) In the case of the verb *megremeg* 'tremble', it can also be observed that the literary translation chose a more effective verb (*rabbrivisce* 'shivers'), expressing the atmosphere of the poem in the given context, while the other two texts applied the literal translation of the verb (*trema*).

(11) The literary translation (*il nostro dibatterci* 'our struggle') and ChatGPT (*il nostro dimenarci* 'our struggle') translated the given phrase in a similar way, correctly interpreting the original text. Google Translate, on the other hand, takes a different interpretation (*ci prendiamo cura* 'we take care').

(12) In the case of the expression *tülkiáltó szónkra* 'to our out-shouting word', Google's version (*al nostro urlarci* 'to our screaming/shouting') is much closer to the literary translation (*alla parola urlata* 'to the shouted word').

(13) The choice made in the literary translation is much stronger, more expressive (*ammazzarci e lottare* 'kill and fight') for the original expression

öldökölnünk és csatáznunk ‘for us to kill and fight’ (Google is using infinitives: *uccidere e combattere* ‘to kill and to fight’; ChatGPT is using conjugated verb forms: *combattiamo e guerreggiamo* ‘we fight and wage war’).

(14) The most effective version is the literary translation (*Ci castigiamo, ma il nostro castigarci/ non è castigo* ‘we are punished (lit. we punish ourselves) but this punishing of ourselves is not a punishment’), which reproduces the poetic device used in the original text, the repetition of words, the literary figure of stacking (*Bűnhődünk, de bűnhődésünk/mégse büntetés*). In this case, Google Translate (*siamo colpevoli* ‘we are culpable’) and ChatGPT (*siamo puniti* ‘we are punished’) chose less powerful expressions.

(15) Similarly to the literary translation (*non può redimerci* ‘can’t redeem us’), ChatGPT used a more poetic translation (*nulla può redimerci* ‘nothing can redeem us’) for the phrase: *nem válthat ki* ‘can’t redeem us’ than Google’s version (*non possiamo scappare* ‘we can’t escape’), which is a more general, common word.

(16) Similarly to the error mentioned in (2) above, Google Translate again incorrectly translated (as *stiamo vomitando* ‘we are vomiting’) the same Hungarian expression (*hányódunk* ‘we are thrown to and fro’). The literary translation used the same expression as in the first occurrence (*ci dibattiamo* ‘we are struggling’), but ChatGPT chose another word here (*affondiamo* ‘we are sinking’), which also reflects the meaning of the original text.

(17) In the final scene of the poem, the literary translation (*sull’enorme tavola imbandita di un pescatore* ‘on the huge table set by a fisherman’) applied a different structure compared to the original text (*egy hatalmas halász asztalán* ‘on the table of a powerful fisherman’), exchanging the adjectives, the attributes. ChatGPT’s translation (*grande pescatore* ‘great fisherman’) comes closest to the literal meaning of the original text (followed by Google’s version: *di un pescatore* ‘of a fisherman’).

5. Conclusions

The aim of the study was to analyse the translation and writing outputs of ChatGPT (version 3.5) in a linguistic approach, by comparing them with the language products of Google Translate. Determining which tool is better for translating depends on many factors. Each serves a distinct purpose. Google Translate is ideal for straightforward text translations, relying on a large database of linguistic data. ChatGPT is a versatile language model with broader capabilities, not only translating but also creating, interpreting meaning, and rephrasing text. It benefits from guided prompts to optimize its translation abilities, and the style of these instructions can influence the quality of its translations.

The analyses were carried out in three languages (Hungarian, Italian and English), with particular emphasis on Hungarian. Each translation was evaluated to identify characteristics of three different text types: a cover letter, an academic/technical text and a literary text (a poem). The assessments focused on specific criteria, including orthography, lexical choice, grammar and pragmatic aspects of language use. In response to the research questions (Section 3), several findings emerged. When translating (1) the cover letter from Hungarian to Italian, Google Translate tended to produce literal translations of terms. ChatGPT's translation, however, was generally more appropriate in terms of lexical choice, sentence structure, and pragmatic aspects. Stylistically, ChatGPT's version fit the context better, showing a greater degree of refinement and creativity. Some sentence structures were simplified by ChatGPT, making the translation easier to interpret. In the case of (2) the academic text, translated from English to Hungarian, ChatGPT made a few orthographic errors. In addition, both AI tools encountered challenges with vocabulary and grammatical structure, resulting in translations of roughly equivalent quality. In translating (3) the poem from Hungarian to Italian, ChatGPT often produced a more poetic text than Google Translate. Crucially, Google Translate misinterpreted a key expression in the poem, which appeared in both the opening and closing lines, which had a strong detrimental effect on the accuracy of the translation.

In summary, the study has shown that the quality of translations produced by the two AI tools varies with text types, one reason of which may be that ChatGPT and Google Translate have been created for different purposes.

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