
AI In Poetry Translation: Can Machines Capture Poetic Essence?

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ABSTRACT: Poetry translation is a challenging process that extends beyond literal meaning, requiring sensitivity to emotional depth, cultural context, and poetic structure (Venuti, 2017). While artificial intelligence (AI) has advanced in machine translation, its ability to preserve poetic essence remains debated (Toral & Way, 2018). The purpose of this study is to analyze AI's role in poetry translation, assessing whether it can retain the artistic and emotional depth of poetry or merely provide word-for-word translations. AI's strengths lie in efficiency and linguistic accuracy, yet its limitations in handling metaphor, rhythm, and cultural context necessitate human intervention (Malmkjær, 2020). The significance of this study is twofold. First, it contributes to computational linguistics by evaluating how AI interacts with poetic language, a highly expressive and symbolic form of communication. Second, it provides insight into translation studies by assessing the extent to which AI can replicate human creativity in poetry translation (Tymoczko, 2007). The findings are relevant to translators, literary scholars, and AI developers aiming to enhance machine learning models for literary texts. By identifying the strengths and weaknesses of AI in poetry translation, this study advocates for AI-human collaboration, where human expertise refines AI-generated outputs for poetic authenticity (Garcia, 2021). Methodologically, the study employs a comparative analysis of AI-generated and human-translated poetry. Selected poems from multiple languages, including Nepali and English, will be translated using AI models such as Google Translate and DeepL. These translations will be evaluated based on linguistic accuracy, poetic aesthetics, and cultural sensitivity by literary experts (Toral & Way, 2018). Through qualitative assessment, the study aims to determine whether AI can go beyond literal meaning to capture poetry's emotional and artistic essence.

KEYWORDS: Artificial Intelligence (AI), linguistic accuracy, cultural sensitivity, poetic essence

INTRODUCTION:

Poetry translation is a uniquely challenging endeavor that transcends the mere conversion of words from one language to another. It demands a deep understanding of emotional subtleties, cultural nuances, and the intricate structures that define poetic expression (Venuti, 2017). Unlike prose, poetry relies heavily on metaphor, rhythm, and symbolism, making its translation a complex task that often requires more than linguistic proficiency. As Venuti (2017) notes, the translator must navigate the delicate balance between preserving the original's artistic integrity and ensuring the translated work resonates with the target audience. This dual responsibility emphasizes the human-centric nature of poetry translation, raising questions about the role of artificial intelligence (AI) in this domain. In recent years, AI has made remarkable strides in machine translation, particularly in handling technical and everyday language with impressive efficiency and accuracy (Toral & Way, 2018). However, its application to poetry translation remains a contentious issue. While AI excels in processing large volumes of text and identifying linguistic patterns, its ability to capture the poetic essence defined by emotional depth, cultural resonance, and aesthetic beauty is still debated (Malmkjær, 2020). Poetry, as a highly expressive and symbolic form of communication, presents unique challenges for AI, particularly in areas such as metaphor interpretation, rhythmic consistency, and cultural context adaptation (Tymoczko, 2007). These limitations highlight the need for human intervention to refine AI-generated translations and ensure they retain the artistic and emotional qualities of the original work.

This study examines the extent to which AI-generated translations can retain poetic essence, including emotional depth, cultural resonance, and artistic beauty. It explores how AI compares to human translators in maintaining metaphor, rhythm, and symbolism in poetry, and investigates the role of human expertise in enhancing AI-generated translations to ensure linguistic accuracy, cultural sensitivity, and poetic authenticity. The research aims to identify AI's strengths and weaknesses in capturing poetic meaning, compare AI-generated and human translations in terms of linguistic accuracy and emotional expression, and evaluate how human intervention can complement AI's capabilities. Ultimately, the study contributes to AI in language and digital linguistics, offering insights into the intersection of technology and creativity in literary translation. It advocates for a collaborative approach where human expertise enhances AI's output, balancing linguistic accuracy with artistic authenticity. By identifying AI's limitations in

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handling poetic language, the research emphasizes the importance of combining technological capabilities with human creativity to achieve high-quality literary translation.

The significance of this study lies in its exploration of AI's potential and limitations in poetry translation, contributing to the fields of language technology and translation studies by bridging the gap between technology and creativity. Through a comparative analysis of AI-generated and human-translated poetry, the research examines how AI interacts with poetic language, focusing on whether AI can transcend literal meaning to capture the emotional and artistic essence of poetry. This investigation aligns with the broader objective of preserving poetic essence, including emotional depth, cultural resonance, and artistic beauty. The study advocates for a collaborative approach, where human expertise complements AI's capabilities to achieve translations that are both linguistically accurate and poetically authentic. It emphasizes the importance of combining technological advancements with the subtle artistry required in poetry translation, offering practical insights for translators, literary scholars, and AI developers. Eventually, the research enhances our understanding of the interaction between technology and creativity in literary translation, providing a framework for future AI-driven translation models while highlighting the indispensable role of human expertise in refining and enhancing AI-generated outputs. This connection between significance and objectives underlines the study's contribution to both theoretical and practical domains.

Artificial Intelligence refers to the simulation of human intelligence in machines designed to perform tasks that typically require human cognition, such as problem-solving, learning, language understanding, and decision-making. AI systems are built using algorithms and data, which allow them to process and interpret large volumes of information, recognize patterns, and adapt to new inputs (Russell & Norvig, 2016). AI encompasses various subfields, including machine learning, natural language processing, robotics, and computer vision, each contributing to different aspects of intelligent behavior. In recent years, AI has become a transformative technology in various domains, including healthcare, finance, education, and translation, where it aids in automating processes and enhancing productivity (Goodfellow, Bengio, & Courville, 2016). Machine learning, a subset of AI, is particularly notable for its ability to improve performance over time by learning from data without explicit programming (Vapnik, 1998). Natural language processing (NLP), another subfield, enables AI systems to interpret and generate human language, making it crucial for applications like speech recognition, machine translation, and chatbots (Manning & Schütze, 2003). While AI has shown significant advancements, its application remains a subject of debate, particularly concerning ethical issues, biases in algorithms, and the potential impact on jobs and privacy (O'Neil, 2016). Nonetheless, AI's potential for revolutionizing industries and improving efficiency remains substantial, with ongoing research aimed at refining its capabilities.

In the context of poetry, translation using AI involves employing artificial intelligence technologies to render poems from one language to another while attempting to preserve their artistic essence, emotional depth, and cultural resonance. Unlike traditional translation, which primarily emphasizes linguistic accuracy, poetry translation requires maintaining literary qualities such as rhythm, metaphor, symbolism, and tone—elements that are often subjective and culturally nuanced. AI-based translation tools, such as Google Translate, DeepL, and neural machine translation models, aim to enhance translation quality by leveraging vast amounts of text data, deep learning, and language modeling (Hassan, 2020). However, linguistic accuracy alone is insufficient in poetry translation, as poetic language often carries multiple connotations, syntactic variations, and ambiguous meanings that AI struggles to interpret effectively (Malmkjær, 2020). While AI excels at processing large volumes of text and generating quick translations, it often falls short in capturing the subtleties of metaphor, rhyme, meter, and aesthetic quality, requiring human intervention to refine AI-generated translations for both linguistic precision and poetic authenticity (Tymoczko, 2007). Poetry is deeply rooted in cultural contexts, often incorporating idioms, historical references, and stylistic elements that may not have direct equivalents in other languages. AI's reliance on statistical patterns rather than lived experiences presents a significant challenge in preserving cultural sensitivity in translation. Tymoczko (2007) emphasizes that cultural references and wordplay often require adaptation rather than direct translation, as a literal approach may strip poetry of its cultural resonance. This limitation makes human oversight essential in ensuring that translated poems retain their intended meaning and emotional depth. Furthermore, poetry carries an aesthetic and emotional quality that AI struggles to replicate. The interplay of sound, imagery, and emotion is fundamental to poetic essence, yet AI lacks the nuanced appreciation of poetic expression necessary for preserving these elements (Bergsma, 2021). Hassan (2020) suggests that while AI tools are improving, they still struggle to maintain poetic fluidity and resonance, often producing translations that are mechanically accurate but emotionally flat.

Effective poetry translation, therefore, requires a delicate balance among linguistic accuracy, cultural sensitivity, and poetic essence. Linguistic accuracy ensures that the words and meaning remain intact, cultural sensitivity preserves contextual and historical significance, and poetic essence retains the artistic and emotional depth of the original work. Since AI struggles to integrate all three simultaneously, human translators play a crucial role in refining AI-generated outputs. AI can provide a useful starting point by generating draft translations, but human expertise is necessary to restore the poem's artistic integrity while maintaining accuracy and cultural relevance. As advancements in machine learning continue, researchers are training AI models on extensive poetry corpora to enhance their ability to capture poetic nuances, making AI-assisted translation a growing field of interest (Bergsma, 2021). However, despite these developments, the fusion of AI and human expertise remains essential to achieving high-quality poetry translations that honor both linguistic fidelity and artistic expression.

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LITERATURE REVIEW:

The convergence of artificial intelligence (AI) and poetry translation has ignited significant academic discourse. Poetry's intricate rhythm, metaphorical richness, and cultural specificity pose challenges that transcend straightforward linguistic translation. This literature review examines the capabilities and limitations of AI-driven translation in capturing the essence of poetry, drawing from theoretical perspectives and empirical research. Poetry translation markedly differs from prose translation due to its artistic and emotive elements. Roman Jakobson (1959) introduced the concept of "intersemiotic translation," referring to the interpretation of verbal signs by means of nonverbal sign systems. He emphasized that poetry requires "creative transposition" into a different system of signs, acknowledging the complexity involved in translating poetic texts (scispace.com). André Lefevere (1992) further posited that translation extends beyond words to encompass cultural transference and artistic intent, suggesting that translations are influenced by ideological and poetological constraints within the target culture (taylorfrancis.com). The translation is not just about changing words from one language to another. It also involves carrying over cultural meanings and the artistic style of the original work. However, translations are shaped by the beliefs, values, and literary traditions of the target language, meaning that translators might adjust the meaning, tone, or style to fit the expectations and norms of the new audience.

Advancements in AI-driven translation, particularly through Neural Machine Translation (NMT) models like OpenAI's GPT and Google's Transformer, have enhanced text fluency and contextual understanding. These systems understand context better than older methods, making translations more accurate. Wu et al. (2016) found that these AI models perform better than traditional translation methods in making sentences sound smooth and meaningful. However, when it comes to poetry, AI still struggles. Unlike regular text, poetry has unique structures like rhythm, rhyme, and deeper meanings hidden in metaphors. These artistic elements are difficult for AI to fully understand and recreate, making poetry translation a challenging task. AI models primarily focus on semantic accuracy, often overlooking formal poetic structures like meter and rhyme schemes, which are crucial to a poem's aesthetic and emotional impact. Additionally, metaphors and idiomatic expressions, deeply rooted in cultural contexts, present significant challenges for AI, leading to potential misinterpretations or loss of meaning. While AI can generate grammatically correct translations, it lacks the emotional intelligence to fully capture a poet's intent and the creative subtleties inherent in poetic works. NMT is great at translating regular text but has trouble with tasks that need deep cultural or contextual understanding, like translating poetry or idiomatic expressions. Another issue is that NMT systems work like a "black box," meaning it's hard to understand how they make decisions. In the context of NMT or AI, "black box" means that while we can see the input (the text to be translated) and the output (the translated text), the steps the system takes to get from input to output are complex and not transparent. For example, in NMT, the AI uses layers of algorithms and data to generate translations, but how it decides on specific words or phrases is often unclear, even to the developers. This lack of transparency makes it hard to explain why the AI made certain choices or to fine-tune it for tasks that require deeper understanding, like translating poetry or idiomatic expressions. Essentially, the process happens "inside the box," and we can't easily peek inside to see how it works. This makes it difficult to adjust them to handle the subtle and creative aspects of poetic language.

The connection of AI and poetry translation has sparked considerable academic debate. Poetry, with its subtle rhythm, metaphorical density, and cultural specificity, presents challenges that extend beyond mere linguistic translation. This literature review explores the capabilities and limitations of AI-driven translation in capturing the essence of poetry, considering theoretical perspectives and empirical research. AI models primarily focus on semantic accuracy, often neglecting formal poetic structures such as meter and rhyme schemes (He et al., 2020). Metaphors and idiomatic expressions, deeply rooted in cultural contexts, remain difficult for AI to interpret accurately (Zhou & Xu, 2021). While AI generates grammatically coherent translations, it lacks the emotional intelligence to fully capture a poet's intent and creative nuances (Manetti & Rossi, 2022). In poetry translation, AI's primary challenge lies in balancing linguistic accuracy, cultural sensitivity, and poetic authenticity. While AI-driven models can process large volumes of text efficiently, they lack the creative intuition and interpretative flexibility that human translators bring to literary works (Venuti, 2017). Literary translation, especially poetry, is highly interpretative. Human translators often make subjective choices based on their understanding of the text and its audience. For example, a human might focus on keeping the rhythm and musicality of a poem rather than translating it word-for-word. This requires a deep knowledge of both the original and target languages (Jones, 2011). While NMT systems can produce grammatically correct translations, they often fail at these interpretative tasks. As a result, their translations might be accurate in terms of language but miss the poetic beauty and emotional depth of the original text (Toral & Way, 2018). While AI handles grammar and vocabulary well, it often misses the artistic and cultural nuances of poetry. This shows why human translators are still essential to refine AI translations and preserve the beauty and meaning of poetic works (Malmkjær, 2020). Despite significant advancements in machine translation, challenges remain, particularly with literary and poetic texts. Translation is not just about substituting words from one language to another; it requires a deep understanding of the source text's cultural, emotional, and aesthetic dimensions (Venuti, 2017). In poetry, meaning is often conveyed through metaphors, rhythm, and cultural references, elements that are complex and context dependent. These nuances pose a challenge for AI, as they demand not only linguistic accuracy but also a grasp of cultural and emotional undertones that are frequently lost in translation (Toral & Way, 2018). A key limitation of current NMT systems is their reliance on large datasets for

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training. While these datasets help models learn patterns and improve syntactic accuracy, they often lack the depth and diversity needed to capture the subtleties of literary language (Popović, 2018). For example, metaphors in one language may not have direct equivalents in another, and cultural references may lose their significance without proper context. This is especially problematic in poetry, where the aesthetic and emotional impact of the text is as crucial as its literal meaning (Genzel, 2010). This highlights why human translators remain essential for refining AI-generated translations, particularly in preserving the beauty and depth of poetic works (Malmkjær, 2020). While AI excels in handling grammar and vocabulary, it often falls short in capturing the artistic and cultural essence of poetry, underscoring the need for human expertise in literary translation.

Several researchers propose hybrid models where AI provides initial drafts, which are refined by human translators. Toral and Way (2018) argue that post-editing AI-generated poetry translations enhances both accuracy and artistic integrity. Aydin and Kara (2023) suggest that AI can serve as an assistive tool rather than a replacement for human translators, optimizing efficiency while preserving the poetic essence. Emerging research focuses on integrating AI with literary stylistic analysis and affective computing to enhance the interpretative quality of translations. Advances in reinforcement learning and transfer learning could improve AI's ability to recognize poetic styles and emotional undertones, bringing machines closer to understanding the essence of poetry. Linguistic accuracy refers to the correctness of grammar, syntax, and word choice in a translation (Malmkjær, 2020). AI translation tools have become adept at maintaining grammatical structure and lexical consistency, making them valuable for technical and non-literary texts. However, poetry often employs ambiguous meanings, wordplay, and stylistic variations that require creative interpretation (Tymoczko, 2007). AI struggles with polysemy, where a single word has multiple meanings, leading to translations that may be technically correct but lack the depth and nuance of the original poem (Bergsma, 2021). Additionally, word-for-word translations may fail to preserve poetic flow and coherence, making AI-generated translations less effective in capturing poetic intent (Toral & Way, 2018). Cultural context plays a crucial role in poetry translation, as poems often incorporate idioms, historical references, and culturally specific metaphors (Bassnett, 2013). AI systems, which primarily rely on statistical learning, often lack the cultural awareness necessary to adapt these references appropriately.

Tymoczko (2007) argues that poetry translation is inherently an act of cultural negotiation, requiring not only linguistic expertise but also an understanding of historical and social contexts. When AI translates poetry, it frequently fails to adapt cultural references in a way that resonates with the target audience, leading to translations that may feel foreign or detached from their intended meaning (Venuti, 2017). Although some NMT models are being trained on diverse literary corpora, they still lack the human ability to interpret cultural subtext and symbolic meaning (Garcia, 2021). Beyond linguistic accuracy and cultural sensitivity, poetry translation requires the preservation of poetic essence, which includes rhythm, imagery, sound patterns, and emotional depth (Jakobson, 1959). These elements are often subjective and difficult to quantify, making them particularly challenging for AI. While AI can generate translations that are structurally sound, it struggles with maintaining rhyme schemes, alliteration, meter, and the emotional impact of the original text (Toral & Way, 2018). Malmkjær (2020) highlights that AI's approach to translation is inherently algorithmic, meaning it lacks the creative intuition and emotional intelligence that human translators bring to literary texts. As a result, AI-generated poetry translations often feel mechanical and devoid of the artistic beauty and depth that define poetry (Bergsma, 2021). AI-generated poetry translations often miss the delicate beauty and deep emotions of the original, making them feel robotic and less expressive.

Challenges and Limitations of AI in Poetry Translation

Despite significant advancements, AI faces several critical challenges in poetry translation, particularly in fully grasping metaphors, symbolism, and cultural nuances. For example, when translating the Spanish line *"Sus ojos eran dos luceros en la noche,"* AI renders it as *"Her eyes were two bright lights in the night,"* missing the poetic elegance of the human translation, *"Her eyes shone like stars in the night."* AI also struggles with sound and rhythm, as it cannot inherently "hear" poetry like humans, resulting in the loss of rhyme schemes, alliteration, and musicality. In translating Laxmi Prasad Devkota's Nepali poem, *"माया छ भने यो मुटु छ, मुटु छ भने यो धड्कन छ,"* AI produces a literal but rhythmically flat version: *"If there is love, there is a heart; if there is a heart, there is a beat."* In contrast, the human translation, *"Where love resides, the heart does too; where hearts exist, they beat anew,"* preserves the poem's musicality and structure. AI also struggles to interpret cultural and emotional nuances. Poetry often carries historical, cultural, or personal emotions that AI cannot fully comprehend. For example, when translating Kabir's Hindi verse *"बिना सतगुरु भेद न पाया, ज्यों तिल माहि तेल,"* AI provides a technically accurate but spiritually shallow translation: *"Without the true guru, the secret is not found, like oil in sesame seeds."* The human translation, *"Without the true guru, the mystery remains unseen, just as oil hides within the sesame seed,"* captures the deeper metaphorical and spiritual essence. This highlights AI's inability to fully grasp culturally specific references and emotional undertones, which are central to the meaning and impact of poetic works.

Additionally, AI lacks the creativity and intent of human poets, relying on pattern recognition rather than original artistic choices. This often results in grammatically correct but emotionally flat translations. However, AI excels in transferring literal meanings. For example, it accurately translates the French line *"Le vent dans les roseaux soupire doucement"* as *"The wind in the reeds sighs softly."* While correct, this version lacks the poetic refinement of a human-crafted translation like *"The whispering reeds bend with*

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the wind," which better captures imagery and movement. While AI is useful for generating initial translations, it struggles to preserve the aesthetic, emotional, and cultural depth that make poetry truly resonant. A hybrid approach where AI provides draft translations and human poets refine them offers a practical solution. AI can suggest multiple versions, allowing human translators to enhance them, ensuring the final work retains its poetic essence. In the translation of poetry, AI can be a valuable tool but cannot replace the creativity, cultural sensitivity, and emotional insight of human poets. Its role is best seen as collaborative, assisting rather than replacing the artistry essential to poetic translation.

METHODOLOGY

The research compares AI-generated and human-translated poetry to see how well AI can translate poetry. The study begins by selecting a variety of poems from multiple languages, including Nepali and English, chosen for their use of metaphors, rhythm, cultural references, and emotional depth (Venuti, 2017). These poems will be translated using AI tools like Google Translate and DeepL, as well as by human translators who specialize in poetry. The translations will be assessed based on three key factors: linguistic accuracy (grammar, syntax, and vocabulary), poetic qualities (such as metaphor, rhythm, and emotional tone), and cultural sensitivity (how well cultural nuances are captured) (Toral & Way, 2018). A group of literary experts will evaluate both the AI and human translations, giving detailed feedback using a structured rubric (Malmkjær, 2020). A structured rubric for poetry translation can serve as a tool to systematically evaluate AI-generated and human translations based on different criteria. Below is an example of a rubric that can be used to assess poetry translations, focusing on various aspects of the translation process:

Poetry Translation Evaluation Rubric

1. Linguistic Accuracy (Grammar, Syntax, Vocabulary)

Criteria	Description	Score (1-5)	Comments
Grammar	Does the translation maintain correct grammar, sentence structure, and word choice? Does it follow the rules of syntax in the target language?	1 (Poor) - 5 (Excellent)	Is the translation free from grammatical errors?
Syntax	Is the sentence structure in the translation clear and appropriate? Does the syntax reflect the original meaning effectively in the target language?	1 (Poor) - 5 (Excellent)	Are there any awkward phrasing or sentence structure issues?
Vocabulary	Is the choice of words accurate and fitting for the context of the poem? Are there any misused words that distort the meaning?	1 (Poor) - 5 (Excellent)	Does the vocabulary match the tone and context of the poem?

2. Poetic Qualities (Metaphor, Rhythm, Emotional Tone)

Criteria	Description	Score (1-5)	Comments
Metaphor and Imagery	Does the translation preserve the metaphors and imagery of the original poem? Are symbolic elements effectively conveyed?	1 (Poor) - 5 (Excellent)	Does the translation successfully capture figurative language?
Rhythm	Is the original rhythm maintained in the translation? Does the poem flow naturally, keeping the same tempo and cadence?	1 (Poor) - 5 (Excellent)	Does the translation keep the original rhythm or flow of the poem?

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Emotional Tone	Does the translation convey the emotional undertones of the original? Does it evoke the same feelings in the reader?	1 (Poor) - 5 (Excellent)	Does the translation reflect the same emotional intensity as the original?
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3. Cultural Sensitivity (Cultural Nuances)

Criteria	Description	Score (1-5)	Comments
Cultural References	Are cultural references accurately and appropriately adapted or preserved in the translation? Are they relevant in the target culture?	1 (Poor) - 5 (Excellent)	Does the translation retain or adapt cultural references effectively?
Contextual Accuracy	Does the translation accurately reflect the cultural context of the original poem? Are there any cultural misinterpretations?	1 (Poor) - 5 (Excellent)	Does the translation respect the cultural background of the original?
Cultural Adaptation	How well does the translation navigate the gap between cultures while preserving meaning and intent?	1 (Poor) - 5 (Excellent)	Does the translation adapt to cultural differences without losing the essence?

Scoring Guide:

- **1 (Poor):** The translation is not effective in this area, and the poem is significantly altered or misrepresented.
- **2 (Fair):** The translation addresses this area to some extent but has noticeable issues that affect the poem's integrity.
- **3 (Good):** The translation generally maintains the original meaning and qualities, with only minor issues.
- **4 (Very Good):** The translation is strong, with only a few minor areas for improvement.
- **5 (Excellent):** The translation is exemplary in this area, capturing the essence, meaning, and artistic qualities of the original poem perfectly.

This rubric can be used to assess poetry translations based on both technical and artistic factors, ensuring a balanced evaluation of the translation's effectiveness.

RESULTS

AI demonstrates strong performance in translating the literal meaning of poetic texts with high grammatical accuracy. For example, in translating Bhupi Sherchan's work from *Ghumne Mech Mathiko Andho Manchhe*, the original Nepali line "यो पृथ्वी असारको भेल जस्तै हो, जसले मलाई बगाउँदै लग्छ!" was rendered by AI as "This earth is like the flood of Ashar, which carries me away." In contrast, a human translation reads, "This earth, a monsoon torrent, sweeps me adrift, unmoored." While AI preserves the fundamental meaning, it fails to capture the poetic elegance and emotional depth of Sherchan's verse. The phrase "bagaudai lagchha" is mechanically translated as "carries me away," missing the evocative fluidity and weight conveyed in the human version. This highlights AI's limitation in preserving the rhythm, nuance, and artistic beauty essential to poetry.

AI struggles to capture the deeper emotional and artistic essence of poetry, particularly in metaphors, rhythm, rhyme, and cultural references. While it excels at translating literal meanings, it often misses the symbolic and intricate elements that give poetry its resonance. In Laxmi Prasad Devkota's *Muna Madan*, the line "नभनु है मेरो देश गरिब छ भनेर, सुनको छ छाना, चाँदीको बार छ!" is translated by AI as "Do not say my country is poor, its roof is gold, its fence is silver." However, a human translation such as "Do not call my country poor, its sky is golden, its borders silver-bright." captures the cultural symbolism and poetic elegance that AI overlooks. Similarly, the line "मानिस ठुलो दिलले हुन्छ, जातले हुँदैन!" is rendered by AI as "A person is great by heart, not by caste," which, though accurate, lacks poetic depth. In contrast, human versions like "It is the heart that makes one great, not the bounds of caste," or "A person's greatness lies in their heart, not in their caste," preserve the rhythmic and philosophical essence of the

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original. AI translations, while grammatically correct, tend to be rigid and neutral, often missing the expressive and lyrical qualities that make poetry impactful. Human translators ensure that the verse retains its rhythm, emotional weight, and cultural richness, highlighting AI's limitations in preserving the auditory and structural beauty of poetry. For instance, in Siddhicharan Shrestha's Nepali line "आफ्नो गगनमा घामलाई झुन्ड्याए, उज्यालो छर्ने होँ हामी," AI translates it as "Hanging the sun in our sky, We spread the light," which misses the rhyme and musicality of the original. In contrast, the human translation, "In our sky, we string the sun, And let its golden rays run," preserves the poetic flow, ensuring the verse maintains its rhythm and lyrical beauty. Literary experts consistently rated human translations higher than AI-generated ones in terms of poetic aesthetics, emotional resonance, and cultural sensitivity. Human translators are praised for capturing the artistic and emotional essence of the original poems, while AI translations, though technically accurate, are often perceived as emotionally flat. This highlights the limitations of AI in replicating the creative and interpretative abilities of human translators, reaffirming that while AI can be a helpful tool, it cannot yet replace the nuanced artistry of human translation.

AI also faces challenges with cultural references and emotional depth, as seen in Lekhnath Paudyal's poem "शरदको शीतल चन्द्रिका, शीतल पवनको शृङ्गार." AI translates it as "The cool moonlight of Sharad, The decoration of cool wind," which misses the cultural significance of "Sharad" (Autumn) in Nepal. The human translation, "Autumn moonlight, cool and bright, Dances with the breeze, dressed in white," captures the seasonal imagery and rhythm that AI fails to convey. Similarly, in Siddhicharan Shrestha's poem, AI provides an accurate but rhythmically flat translation, missing the musicality that human translators preserve. These examples show that AI's translations, though technically correct, lack the cultural sensitivity, emotional resonance, and poetic flow that human translators can provide. AI's difficulty with cultural references and poetic rhythm highlights the need for more advanced techniques to handle cultural context and emotional intelligence. While AI is useful for translating literal meanings, it cannot replicate the metaphorical richness and artistic nuances of poetry. In summary, although AI can assist in poetry translation by providing a basic framework, the emotional, cultural, and artistic depth that defines poetry is best captured by human translators. Poetry remains a deeply human art, requiring intuition, creativity, and cultural sensitivity—qualities that AI has yet to fully master. Thus, while AI can aid in the process, the essence and soul of poetry will always remain a human domain.

FINDINGS

AI demonstrates strong capabilities in translating the literal meaning of poetic texts with high linguistic accuracy. However, it often falls short of capturing the deeper emotional and artistic essence, including metaphors, symbolism, and nuanced expressions. For example, while AI translations may be grammatically correct, they often lack the poetic refinement and depth achieved by human translators. This limitation is evident in works like Laxmi Prasad Devkota's poetry, where AI translations fail to preserve the rhythmic flow and structural elegance that human translators manage to maintain. Furthermore, AI struggles with essential poetic elements such as rhyme, rhythm, and alliteration, which are crucial for the musicality and aesthetic appeal of poetry. A significant challenge for AI in poetry translation lies in its difficulty in interpreting cultural and emotional contexts. When translating Kabir's Hindi verse, AI may provide a literal translation but misses the spiritual and metaphorical depth conveyed by human translators. This highlights AI's struggle to fully understand culturally specific references and emotional nuances, which are essential to the impact of poetry. To address this, it is vital to combine AI's efficiency with human creativity and interpretative skills. While AI can process large volumes of text and offer a solid foundation, human intervention is indispensable for refining translations and preserving poetic authenticity.

A collaborative approach combines the strengths of both AI and human expertise, ensuring translations that are both accurate and artistically resonant. Literary experts consistently rate human translations higher than AI-generated ones in terms of poetic aesthetics, emotional resonance, and cultural sensitivity. This confirms that while AI is useful, it cannot yet replicate the creative and interpretative abilities of human translators. The human touch is essential for capturing the true essence of poetry. The study suggests that AI models could be improved by incorporating more advanced techniques to better understand cultural context, emotional depth, and poetic structures. However, achieving this level of sophistication is still a challenge. While future advancements may reduce the gap, human expertise remains vital. In conclusion, AI is a valuable tool for poetry translation, but it cannot fully replace human translators in preserving artistic depth. A balanced approach that blends technology with human creativity is the best way to achieve translations that are both accurate and poetically authentic.

CONCLUSION

This study highlights the growing role of AI in poetry translation while emphasizing its limitations in preserving the emotional depth, cultural nuances, and artistic qualities intrinsic to poetry. While AI has made notable strides in linguistic accuracy and efficiency, it struggles with capturing the metaphorical, rhythmic, and culturally specific elements that are central to the soul of a poem. AI's current capabilities are best suited for generating initial translations, but human expertise remains essential for refining these outputs and ensuring that the poetic authenticity and emotional resonance of the original text are preserved. A hybrid approach, where AI handles the technical aspects of translation and human translators apply their interpretive skills, is identified as the most

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effective solution. This collaborative model allows AI to process linguistic tasks quickly and efficiently, while human translators bring their creativity and cultural sensitivity to ensure the final translation remains true to the artistic intent of the poem. By combining the strengths of both AI and human expertise, translations can achieve a balance of linguistic precision and emotional depth. Furthermore, the study contributes to the field of computational linguistics by examining how AI interacts with poetic language, highlighting areas where future AI models could be improved, such as by incorporating context-aware algorithms that better understand poetic structures and cultural references. While AI continues to evolve, the findings suggest that the human touch is indispensable in capturing the full artistic essence of poetry, particularly in dealing with the complexities of metaphors, symbolism, and emotional nuance.

In conclusion, this research emphasizes the importance of human creativity and cultural sensitivity in poetry translation. While AI can assist in generating initial translations, it cannot replace the human touch required to preserve the emotional depth and artistic essence of poetry. The study advocates for continued efforts to enhance AI's ability to bridge the gap between computational efficiency and artistic expression, ensuring that the true essence of poetry is retained in translation. A balanced collaboration between AI and human translators emerges as the most effective approach, enabling translations that are both linguistically accurate and artistically authentic. Hybrid models, in which AI generates an initial draft and human poets refine the rhythm, emotion, and poetic style, present a promising solution. AI can propose multiple versions, enabling human translators to select and refine the most appropriate one. This collaborative approach provides the optimal path forward for achieving translations that maintain both linguistic accuracy and poetic integrity in the future.

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