



ARTIFICIAL INTELLIGENCE-BASED ORAL TRANSLATION: PROBLEMS OF LINGUOCULTURAL AND PRAGMATIC ADAPTATION

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Abstract: This article examines the problems of linguocultural and pragmatic adaptation in artificial intelligence-based oral translation. It analyzes how modern AI systems process spoken language and the extent to which they can preserve cultural meaning, communicative intention, and contextual appropriateness. The study highlights that although artificial intelligence significantly improves translation speed and accessibility, it still faces limitations in interpreting culturally bound expressions, speech acts, and implicit meanings. The findings suggest that effective oral translation in the digital era requires a hybrid approach that combines machine efficiency with human interpretative competence.

Keywords: artificial intelligence, oral translation, linguocultural adaptation, pragmatic competence.

Introduction

In the era of rapid digital transformation, artificial intelligence technologies have significantly influenced the field of oral translation and interpreting. AI-based systems, including neural machine translation and real-time speech recognition tools, are increasingly used in international communication, conferences, and multilingual environments. These technologies have improved the speed and accessibility of translation services, making communication across languages more efficient than ever before. However, oral translation is not only a mechanical transfer of words from one language to another but also a complex cognitive and cultural process. It requires understanding of cultural references, social norms, speaker intentions, and contextual meanings. In this regard, linguocultural and pragmatic aspects play a crucial role in ensuring accurate and meaningful communication.

Scholars such as Jakobson, Hatim and Mason, and Gutt emphasize that translation involves not only linguistic equivalence but also pragmatic adequacy and cultural interpretation. AI systems, however, primarily rely on statistical models and neural networks, which often fail to fully capture implicit meanings, idioms, humor, and culturally specific expressions. Therefore, the study of linguocultural and pragmatic adaptation in AI-based oral translation is



highly relevant. It allows us to understand the limitations of current technologies and explore ways to improve the interaction between human and machine translation systems.

Main body

One of the main problems in AI-based oral translation is the inability of systems to fully understand culturally specific expressions. Idioms, metaphors, proverbs, and culturally embedded phrases often lose their original meaning when processed by machine translation systems. This leads to semantic distortion and reduces the effectiveness of communication. Another important issue is pragmatic failure, which occurs when the translated message does not reflect the speaker's intended meaning. Speech acts such as requests, apologies, refusals, or suggestions require contextual interpretation. AI systems often translate these expressions literally, ignoring social hierarchy, politeness strategies, and communicative intent.

In addition, prosodic features such as intonation, stress, and emotional tone are not always accurately interpreted by AI systems. These features are essential in oral communication because they convey attitude, emotion, and emphasis. The absence or misinterpretation of these elements can lead to misunderstandings in intercultural communication.

Despite these limitations, AI-based translation systems offer significant advantages. They provide real-time translation, reduce communication barriers, and increase accessibility in multilingual environments. In international conferences, business meetings, and online communication platforms, AI tools play an increasingly important role. A deeper analysis of artificial intelligence-based oral translation shows that one of the core limitations is the lack of discourse-level understanding. AI systems typically process language at the sentence or phrase level, while real oral communication depends on extended discourse, where meaning is constructed across multiple utterances. As a result, coherence and cohesion in longer speech segments are often weakened in machine-generated translations.

Another important issue is the handling of ambiguity in spoken language. In natural speech, speakers frequently use incomplete sentences, repetitions, hesitations, and fillers. Human interpreters are able to infer meaning from context, but AI systems often misinterpret or oversimplify such inputs, leading to inaccurate translation output. This is particularly problematic in spontaneous conversations and informal communication settings. Code-switching is also a significant challenge in multilingual environments. Speakers often switch between languages within a single conversation or even within a single sentence. While advanced AI models are improving in multilingual processing, they still struggle to maintain accuracy and consistency when rapid language



switching occurs, especially in culturally diverse contexts.

Furthermore, cultural pragmatics plays a crucial role in shaping meaning during oral communication. Elements such as politeness conventions, indirectness, and cultural taboos vary significantly across languages. AI systems tend to apply generalized translation rules, which may not reflect the specific cultural expectations of the target audience. This can result in pragmatic mismatch and communication breakdown. Recent advances in neural networks and transformer-based architectures have improved speech recognition and translation accuracy. However, these systems still rely heavily on training data, which may not fully represent real-world cultural diversity. Consequently, underrepresented languages and dialects often experience lower translation quality, reinforcing digital inequality in global communication.

Another dimension is emotional intelligence in translation. Human interpreters naturally detect emotional cues such as sarcasm, irony, frustration, or enthusiasm. AI systems, despite improvements in sentiment analysis, still lack deep emotional comprehension. This limitation affects the accuracy of translated speech in sensitive contexts such as diplomacy, healthcare, and legal communication. In professional interpreting environments, ethical considerations also arise. AI-based translation may unintentionally distort meaning, leading to miscommunication in high-stakes situations. Therefore, human oversight remains essential to ensure accuracy, accountability, and ethical responsibility in oral translation processes.

Another important aspect of AI-based oral translation is its dependence on standardized linguistic data, which limits its ability to process regional dialects and sociolects. In real communication, speakers often use non-standard language varieties influenced by geography, social class, age, or professional background. Human interpreters can adapt to these variations intuitively, whereas AI systems frequently misinterpret or normalize them, which may result in loss of meaning or reduced communicative authenticity. In addition, lexical gaps between languages present a serious challenge for artificial intelligence. Certain concepts exist in one culture but have no direct equivalent in another language. In such cases, human translators typically use paraphrasing, explanation, or cultural substitution strategies. AI systems, however, often produce literal translations that fail to convey the intended conceptual meaning, weakening intercultural understanding.

Turn-taking mechanisms in oral communication also create difficulties for AI systems. Natural conversations involve interruptions, overlaps, pauses, and backchanneling signals such as “uh-huh” or “I see.” These elements are essential for maintaining conversational flow and interpersonal engagement. While speech recognition technologies are improving, AI still struggles to



accurately interpret and reproduce these interactional features in real time. Another emerging issue is the lack of contextual memory in short AI translation segments. Oral translation often requires remembering previous parts of the conversation to maintain consistency in terminology and meaning. Although modern transformer-based models have improved context handling, they still face limitations when dealing with long, complex dialogues in dynamic environments.

Furthermore, sociopragmatic variation across cultures significantly influences communication style. For example, directness in requests or criticism may be acceptable in one culture but considered rude in another. AI systems often fail to adjust such pragmatic choices appropriately, leading to unintended communicative offense or misunderstanding. From a technological perspective, latency and processing delays remain a concern in real-time AI translation systems. Even small delays can disrupt the natural rhythm of conversation, especially in fast-paced environments such as negotiations or public speeches. Human interpreters, by contrast, can adapt timing more flexibly according to communicative needs.

In educational and professional settings, the integration of AI translation tools is also changing the role of interpreters. Instead of replacing humans, AI is increasingly functioning as a support system that assists with terminology retrieval, transcription, and preliminary translation. This shift requires new competencies from interpreters, including digital literacy and the ability to critically evaluate machine output. Moreover, ethical and privacy issues are becoming increasingly important in AI-based oral translation. Many systems process sensitive personal or institutional data, raising concerns about data security and confidentiality. Ensuring responsible use of AI in translation requires strict regulatory frameworks and professional ethical standards.

Despite these challenges, hybrid interpreting systems are emerging as a promising solution. In such systems, AI performs initial transcription and translation, while human interpreters refine output by adding cultural and pragmatic adjustments. This collaboration enhances both efficiency and quality, especially in real-time communication scenarios. Additionally, continuous learning systems are being developed, where AI models improve through user feedback. These adaptive systems can gradually reduce errors in cultural interpretation and pragmatic usage. However, their effectiveness still depends on the quality and diversity of training datasets. Overall, the integration of artificial intelligence into oral translation represents a significant technological advancement, but it also highlights the persistent need for human expertise in managing cultural and pragmatic complexity.

However, studies show that hybrid translation models, which combine



artificial intelligence with human interpreters, are more effective. Human translators are able to interpret cultural nuances, adjust pragmatic meaning, and ensure communicative appropriateness, while AI provides speed and technical support.

Recent developments in deep learning and natural language processing have improved the quality of machine translation, but full cultural and pragmatic understanding remains a challenge. Therefore, ongoing research focuses on integrating contextual awareness and discourse-level analysis into AI systems.

Conclusion

In conclusion, artificial intelligence-based oral translation has significantly transformed global communication, but it still faces serious challenges in linguocultural and pragmatic adaptation. While AI systems are highly efficient in processing linguistic data, they are limited in understanding cultural context, implied meanings, and pragmatic functions of speech. The most effective solution lies in a hybrid approach that combines human interpretative skills with machine processing power. Future developments in AI should focus on improving contextual understanding and cultural sensitivity to enhance the quality of oral translation.

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