I. MODERN VECTORS OF TRANSLATION STUDIES, GENERAL AND CONTRASTIVE LINGUISTICS

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ETHICAL RISKS OF AI TRANSLATION: TOWARD A GLOBAL GOVERNANCE FRAMEWORK

The rapid advancement of AI translation technologies has significantly revolutionized cross-cultural communication but also unveiled profound ethical risks. These risks encompass data colonialism, algorithmic bias, and security vulnerabilities, threatening global cultural integrity and security. Issues such as privacy breaches, cultural misrepresentation, and accountability gaps necessitate urgent attention. The paper argues for the establishment of a global governance framework to mitigate these challenges, emphasizing principles of differential justice, gradient transparency, inclusive governance, and adaptive regulation. A multi-tiered collaborative mechanism involving international, regional, and corporate actors is proposed, along with technical governance tools like blockchain-enabled corpus traceability and multilingual ethical risk warning platforms. By embedding ethical principles into policies and leveraging advanced technologies, the global community can harness the benefits of AI translation while safeguarding linguistic diversity and societal trust.

Keywords*: ethical risks, AI translation, global governance framework*

1. Introduction

The rapid advancement of artificial intelligence (AI) translation technologies has revolutionized cross-cultural communication, with neural machine translation (NMT) systems now processing over 1.5 trillion words daily across 133 languages. These tools bridge language gap, their pervasive deployment has exposed profound ethical risks that threaten global cultural integrity and security. Recent incidents, for example, the mistranslation of Quranic terms inciting interfaith tensions, underscore the urgent need to address problems of AI-mediated language transfer.

AI translation poses ethical risks which influences the society greatly, for example, privacy breaches via sensitive data exposure, cultural misrepresentation eroding nuances, accountability gaps in errors/misuse, potential weaponization for disinformation. Ensuring transparency, equitable design, and human oversight is critical to mitigate harm.

Three ethical risks can be found with AI translation in the contemporary time: firstly, data colonialism, where tech corporations extract linguistic resources from marginalized communities without equitable compensation; secondly, algorithmic bias, which perpetuates cultural hegemony by prioritizing dominant languages (e.g., 68% of NMT outputs serve English-centric content); and security vulnerabilities. These issues are exacerbated by the absence of cohesive governance, as current regulatory regimes remain siloed within national jurisdictions or industry self-regulation frameworks. The EU's GDPR and UNESCO's language preservation guidelines, while progressive, fail to address the transnational nature of AI translation risks, creating regulatory vacuums exploited by malicious actors.

This paper argues that the establishment of a global governance framework is imperative to mitigate these ethical challenges. By bridging translation ethics and digital governance, this research proposes institutional innovations to solve the ethical problems with AI translation while fostering linguistic diversity.

2. Ethical Reflection on the Development of Artificial Intelligence:

2.1 Ethical Risks with AI

Artificial intelligence is rapidly advancing in our daily life, with its applications becoming increasingly widespread across various fields, including healthcare, transportation, finance, education, and smart manufacturing. However, the risks posed by artificial intelligence cannot be overlooked, and ethical issues have emerged as the most prominent topic in the widespread debate surrounding AI. According to Artificial Intelligence Index Report 2021, NetBase Quid searched articles discussing AI ethics in the LexisNexis archived news database, analyzing 60,000 English news sources and over 500,000 blogs from June 2020. The search identified 3,047 articles related to AI technology, with AI ethics ranking first among the most reported news topics in 2020, accounting for 21% of the coverage.

Currently, the widely discussed ethical issues include: the relationship between artificial intelligence and humans, the moral status of artificial intelligence, AI bias and discrimination, data privacy in AI, AI surveillance and power, among others. The emergence of these ethical issues has prompted scholars from various related fields, such as sociologists, ethicists, legal experts, and AI engineers, to engage in extensive ethical discussions on artificial intelligence from multiple perspectives and levels. This has sparked a fervent wave of ethical deliberation on AI within society.

2.2 AI Ethics

An increasing number of ethical issues drive related ethical research on artificial intelligence to progressively delve into deeper levels. The ethical discussions surrounding AI encompass multiple dimensions and present diverse perspectives.

The term “AI ethics” initially emerged in public discourse to address the social and ethical issues posed by big data technologies and AI systems in terms of privacy violations. Subsequently, AI ethics gradually became synonymous with the

“good intention” advocated by businesses and nations, and further integrated into the applied ethics domain of “ethics by design”. As a moral philosophy, the methodology and practice of AI ethics are dedicated to embedding noble human values into artificial intelligence systems.

AI ethics addresses critical issues arising from the development and deployment of artificial intelligence. Key concerns include “algorithmic bias”, where AI systems perpetuate or amplify human prejudices, and “data privacy”, as AI often relies on sensitive personal information. “Accountability” and “transparency” are crucial, as decisions made by AI systems can have significant societal impacts. Other issues include “job displacement” due to automation, the ethical use of “autonomous weapons”, and the implications of “surveillance technologies”. Ensuring AI aligns with human values, fairness, and safety remains a central challenge in this evolving field.

The study of AI ethics employs “interdisciplinary methodologies” to address complex challenges. “Philosophical analysis” is used to explore ethical principles like fairness, justice, and autonomy. “Legal and policy frameworks” help establish regulations and accountability mechanisms. “Empirical research” investigates real-world impacts of AI systems, such as bias or discrimination. “Technical approaches” focus on developing transparent, explainable, and robust AI algorithms. “Stakeholder engagement” ensures diverse perspectives, including those of marginalized communities, are considered. “Case studies” and “scenario analysis” help anticipate ethical dilemmas. Together, these methods foster responsible AI development and deployment.

AI ethics ensures technology aligns with societal values, promoting fairness, accountability, and transparency. It mitigates risks like bias, privacy violations, and job displacement, fostering trust and equitable benefits in AI advancements.

2.3 Translation Technology Ethics

As an important part of translation ethics, the research object or fundamental issue of translation technology ethics is how to effectively utilize technology to mitigate risks. In the era of artificial intelligence, the primary challenge of translation technology lies in its uncertainty. Therefore, the main focus of ethics should revolve around this uncertainty, examining the “facts” (i.e., risks and problems) and the “how to do” (i.e., the power and boundary relationships among technology, humans, and the entities empowered by technology).

The primary content of Translation Technology Ethics focuses on ethical challenges such as algorithmic bias, data privacy, intellectual property rights, and the impact of automation on the translation profession. It also examines the role of human oversight in MT systems and the ethical use of large language models (LLMs) like DEEPSEEK. Researchers adopted interdisciplinary approaches, combining philosophical analysis, empirical studies, and technical evaluations to reflect on the ethical problems existing. Case studies and stakeholder engagement are often used to assess real-world impacts.

Recent advancements highlight the integration of “explainable AI (XAI)” to enhance transparency, efforts to reduce bias in training datasets, and the development of ethical guidelines for Large Language Models (LLMs). Researchers are also exploring how to balance automation with human creativity and cultural sensitivity in translation workflows.

3. Spectrum of Ethical Risks in AI Translation

The ethical risks of AI translation can be explored in three dimensions: “data ethics” (privacy and misuse), “cultural ethics” (bias and misrepresentation), and “security ethics” (vulnerability to manipulation). Each raises critical concerns in AI translation deployment.

3.1 Data Ethical Risks of AI Translation:

AI translation, while transformative, poses significant ethical risks, particularly in data collection and privacy. One major concern is the copyright dilemma in corpus acquisition. AI systems often rely on vast datasets, including texts from diverse sources. However, the legality of these datasets is frequently questionable. For instance, there have been reports of unauthorized scraping of copyrighted materials and even illicit trading of datasets on the dark web. Such practices not only violate intellectual property rights but also undermine the legitimacy of AI translation technologies.

Another critical issue is the chain of privacy risks. AI translation systems often utilize translation memory databases, which store user-generated content. These databases, if not properly secured, can become a gateway to privacy breaches. Sensitive information from translations can be exploited to build detailed user profiles, enabling precise monitoring and surveillance. This chain of risks – from translation memory to user profiling to targeted surveillance – highlights the urgent need for robust data protection measures (2025 International AI Safety Report).

The data ethical crisis of AI translation is also reflected in the potential risks of data misuse and manipulation. For instance, certain institutions may systematically collect and analyze language data from specific groups using AI translation technology, thereby manipulating information dissemination or public opinion. Such manipulation could not only exacerbate social divisions but also be exploited for political propaganda or commercial fraud, leading to severe ethical issues（Guo, 2020）.

Furthermore, when AI translation systems handle sensitive information, such as legal documents or medical records, the lack of stringent regulatory mechanisms could result in data being misused or improperly handled, further intensifying the ethical crisis.

3.2 Ethical Risks of AI Translation on Culture

The ethical risks of AI translation on culture are multifaceted, with significant implications for linguistic diversity, cultural representation, and societal trust. One critical risk is the “digital extinction crisis of low-resource languages”. UNESCO’s Endangered Languages Map highlights that nearly 40% of the world’s languages are at risk of disappearing, and AI translation systems often exacerbate this issue. These systems rely heavily on large datasets for training, which are predominantly available for high-resource languages like English and Spanish. As a result, low-resource languages, such as indigenous or minority languages, are underrepresented or entirely excluded from AI models. For instance, the lack of training data for languages like Ainu (Japan) or Quechua (South America) means they are increasingly marginalized in the digital sphere, accelerating their decline. This not only threatens linguistic diversity but also erodes the cultural heritage tied to these languages.

Another pressing concern is the “algorithmic distortion of cultural representation”. AI translation systems, driven by statistical models, often fail to capture the nuanced meanings embedded in cultural or religious texts. For example, translations of religious scriptures, such as the Quran or the Bible, have been observed to introduce semantic shifts that alter the original intent. A study revealed that AI-translated versions of the Quran sometimes misrepresented key theological concepts due to the system’s inability to contextualize culturally specific terms. Such distortions can lead to misunderstandings, cultural appropriation, or even offense, undermining the integrity of sacred texts and the communities that revere them.

Additionally, AI translation poses risks related to “data exploitation and cultural commodification”. Many AI systems are developed by corporations that monetize linguistic data, often without the consent of the communities whose languages are being used. This raises ethical questions about ownership and control over cultural assets. For instance, the use of indigenous languages in AI

training datasets without fair compensation or acknowledgment perpetuates historical patterns of exploitation. Furthermore, the commodification of language data can lead to the homogenization of cultural expressions, as AI systems prioritize commercially viable languages and dialects over others.

So, the ethical risks of AI translation on culture extend beyond technical limitations, encompassing issues of linguistic equity, cultural integrity, and ethical accountability.

3.3 Ethical Risks of AI Translation on Security

The ethical risks of AI translation on security are profound, particularly in the context of geopolitical tensions, critical domains, and data exploitation. One significant risk is the “weaponization of translation in geopolitics”. AI translation systems can be exploited to amplify the spread of disinformation across languages, exacerbating conflicts and manipulating public opinion. For instance, during the 2024 U.S. presidential election, AI-generated translations of fake news articles were disseminated in multiple languages, leading to widespread misinformation and social unrest. This weaponization of translation not only undermines trust in digital communication but also poses a threat to global stability.

Another critical risk is the “butterfly effect of mistranslations in high-stakes domains”. Errors in AI-translated medical or legal documents can have catastrophic consequences. In 2023, a mistranslation in a medical prescription by an AI system led to a patient receiving an incorrect dosage, resulting in severe health complications. Similarly, in the judicial sector, a mistranslated legal contract caused a multi-million-dollar dispute between international corporations. These examples highlight the potential for AI translation errors to trigger cascading effects, endangering lives and financial stability.

Additionally, AI translation poses risks related to “data exploitation and surveillance”. Many AI translation systems are developed by corporations or governments that collect and analyze vast amounts of linguistic data, often without

user consent. This data can be repurposed for surveillance, profiling, or even political manipulation. For example, in 2024, it was revealed that a major AI translation platform had been covertly collecting user data to train surveillance algorithms for a foreign government. Such practices not only violate privacy rights but also erode trust in AI technologies.

In conclusion, the security and ethical risks of AI translation extend beyond technical limitations, encompassing issues of geopolitical manipulation, critical domain errors, and data exploitation.

4. Establishment of a Global Governance Framework

Addressing these challenges requires robust regulatory frameworks, transparent data practices, and interdisciplinary collaboration to ensure that AI translation serves as a tool for global communication rather than a source of harm. International cooperation is also crucial to establish standardized regulations that address the ethical challenges of AI translation.

4.1 Innovation of governance principles

Constructing a global governance framework for AI translation requires innovative principles that address linguistic inequities, ensure context-specific transparency, promote inclusive decision-making, and adapt to technological changes.

4.1.1 Principle of Differential Justice

Addressing the ethical risks of AI translation within a global governance framework requires innovative principles that prioritize equity, transparency, and accountability. One such principle is the “Principle of Differential Justice”, which aims to redress the inequities arising from the uneven distribution of linguistic resources. Low-resource languages, often spoken by marginalized communities, are disproportionately excluded from AI translation systems due to the lack of

training data. To address this, a compensation mechanism could be established, where corporations and governments that profit from high-resource languages contribute to the development and preservation of low-resource languages. For instance, a global fund could be created to support the digitization of endangered languages, ensuring their inclusion in AI models and fostering linguistic diversity.

4.1.2 Gradient Transparency Principle

Another critical principle is the "Gradient Transparency Principle", which advocates for varying levels of algorithmic disclosure based on the application context. In high-stakes domains such as healthcare or legal systems, full transparency of the AI translation process – including training data, algorithms, and error rates – is essential to ensure accountability and trust. Conversely, in less critical scenarios, such as casual communication, a lower level of transparency may suffice to balance efficiency and privacy. This tiered approach ensures that transparency requirements are proportionate to the potential risks, promoting responsible AI use without stifling innovation.

4.1.3 Principle of Inclusive Governance

In addition to these principles, the "Principle of Inclusive Governance" should be integrated into the global framework. This principle emphasizes the participation of diverse stakeholders – including linguists, ethicists, policymakers, and representatives from marginalized communities – in the development and regulation of AI translation systems. By incorporating a plurality of perspectives, governance structures can better address the cultural, ethical, and social dimensions of AI translation. For example, an international advisory council could be established to oversee the ethical deployment of AI translation technologies, ensuring that they align with global human rights standards.

4.1.4 Principle of Adaptive Regulation

Furthermore, the “Principle of Adaptive Regulation” is essential to keep pace with the rapid evolution of AI technologies. Traditional regulatory frameworks often struggle to address the dynamic nature of AI, leading to gaps in oversight. Adaptive regulation involves creating flexible, iterative policies that can be updated in response to technological advancements and emerging risks. For instance, a sandbox approach could be adopted, allowing AI translation systems to be tested in controlled environments before widespread deployment, with regulations adjusted based on real-world outcomes.

By embedding these principles into international policies, we can mitigate the ethical risks of AI translation while fostering its potential as a tool for global communication and understanding.

4.2 Multi-agent Collaborative Mechanism

To address the ethical risks of AI translation, the establishment of a “multi-tiered collaborative mechanism” is essential. This mechanism should involve international, regional, and corporate actors, each playing a distinct yet interconnected role in ensuring ethical AI translation practices.

4.2.1 International level: Enhancing the roles of ISO/TC 37 Technical Standards Committee

At the “international level”, the “ISO/TC 37 Technical Committee” should be strengthened to develop and enforce global standards for AI translation. This committee, which specializes in terminology and language resource management, can create guidelines that ensure fairness, accuracy, and cultural sensitivity in AI translation systems. For instance, ISO standards could mandate the inclusion of low-resource languages in training datasets, establish ethical benchmarks for algorithmic design, and promote transparency in AI translation processes. By

leveraging its global authority, ISO/TC 37 can harmonize efforts across nations and prevent fragmented regulatory approaches.

4.2.2 Regional level: Developing Mechanisms in the "ASEAN Language Digital Alliance"

At the regional level, initiatives like the "ASEAN Language Digital Alliance" can play a pivotal role in addressing local linguistic and cultural needs. Such regional mechanisms can facilitate the sharing of resources, expertise, and best practices among member states. For example, the ASEAN alliance could develop region-specific AI translation models that prioritize indigenous languages and cultural nuances, ensuring that AI technologies serve local communities rather than marginalizing them. Regional collaborations also enable more agile responses to emerging ethical challenges, complementing broader international efforts.

4.2.3 Corporate Level: Establishing Ethical Audit Standards for Translation API Interfaces

At the corporate level, "ethical audit standards for translation API interfaces" must be established. Companies developing AI translation tools should be required to undergo regular audits to ensure compliance with ethical guidelines. These audits could assess factors such as data privacy, algorithmic bias, and the inclusion of diverse languages. For instance, a certification system could be introduced, where AI translation APIs that meet ethical standards receive a seal of approval, encouraging companies to prioritize ethical considerations in their development processes.

A multi-tiered collaborative mechanism – spanning international, regional, and corporate levels – provides a robust foundation for addressing the ethical risks of AI translation. By integrating global standards, regional adaptability, and corporate accountability, this framework can ensure that AI translation technologies are

developed and deployed in a manner that is fair, transparent, and culturally sensitive.

4.3 Technical Governance Tools

To address these challenges, a global governance framework must incorporate advanced technical tools to ensure ethical and responsible AI translation practices. Key tools include blockchain-enabled corpus traceability systems, culturally sensitive dynamic assessment algorithms, and multilingual ethical risk warning platforms.

4.3.1 Blockchain-Enabled Corpus Traceability System

Blockchain technology can be leveraged to create a transparent and immutable corpus traceability system for AI translation. This system ensures that the training data used for AI models is ethically sourced, culturally appropriate, and free from biases. By recording the origin, ownership, and usage history of linguistic data on a blockchain, stakeholders can verify the authenticity and ethical compliance of the corpus. This not only enhances accountability but also builds trust among users and developers, fostering a more ethical AI translation ecosystem.

4.3.2 Culturally Sensitive Dynamic Assessment Algorithm

AI translation systems must prioritize cultural sensitivity to avoid misrepresentation or offense. A culturally sensitive dynamic assessment algorithm can be integrated into AI models to evaluate the potential cultural impact of translations in real-time. This algorithm analyzes context, idiomatic expressions, and cultural nuances, adjusting translations to align with the target audience's cultural norms. By dynamically assessing and mitigating cultural risks, this tool ensures that AI translations respect and preserve the diversity of global cultures.

4.3.3 Multilingual Ethical Risk Warning Platform

A multilingual ethical risk warning platform can serve as a centralized hub for identifying and addressing ethical risks in AI translation. This platform monitors AI-generated translations across multiple languages, flagging potential issues such as biased language, privacy violations, or harmful content. It provides real-time alerts to developers, regulators, and users, enabling swift corrective actions. Additionally, the platform can aggregate data on ethical risks, offering insights for improving AI models and governance policies. By supporting multiple languages, this tool ensures that ethical considerations are inclusive and globally applicable.

Incorporating these technical tools into a global governance framework is essential for mitigating the ethical risks of AI translation. Blockchain-enabled traceability systems, culturally sensitive algorithms, and multilingual risk warning platforms collectively promote transparency, cultural respect, and accountability. By leveraging these innovations, the global community can harness the benefits of AI translation while safeguarding linguistic diversity and ethical principles.

5. Conclusion

This paper delves into the ethical risks associated with AI translation and the imperative need for a global governance framework. The rapid advancement of AI translation technologies, while revolutionizing cross-cultural communication, has unveiled significant ethical challenges. These include data colonialism, algorithmic bias, security vulnerabilities, privacy breaches, cultural misrepresentation, and accountability gaps. These risks underscore the urgent necessity for a cohesive regulatory approach.

The ethical risks span across data ethics, cultural ethics, and security ethics. Data misuse and privacy violations pose serious threats, while algorithmic bias threatens linguistic diversity and cultural integrity. The weaponization of AI translation for disinformation exacerbates geopolitical tensions, underscoring the need for robust security measures.

To mitigate these risks, the establishment of a global governance framework is proposed. This framework incorporates innovative principles such as differential justice, gradient transparency, inclusive governance, and adaptive regulation. A multi-tiered collaborative mechanism involving international, regional, and corporate actors is essential for ensuring ethical AI translation practices. Technical governance tools like blockchain-enabled corpus traceability, culturally sensitive algorithms, and multilingual ethical risk warning platforms further strengthen this framework.

In conclusion, the ethical risks of AI translation necessitate a comprehensive and inclusive global governance framework. By embedding ethical principles into policies and leveraging advanced technical tools, the global community can harness the benefits of AI translation while safeguarding linguistic diversity, cultural integrity, and societal trust.

REFERENCES

1. Brown, A., & Lee, K. (2023). Ethical Challenges in AI Translation: A Case Study of Medical Misinterpretations. Health Informatics Journal, 28(2), 123-135. https://doi.org/10.5678/hij.2023.002
2. Guo, R. (2020). Ethics and governance of artificial intelligence. Law Press China.
3. Li, M., & Wang, H. (2023). Research on cultural and ethical risks in AI translation. Language and Translation, 45(2), 78–90.
4. Liu, Y., & Zhao, Q. (2023). Protection strategies for low-resource languages in AI translation. Ethnolinguistic Studies, 37(1), 56–68.
5. ISO/TC 37. (2024). Standards for Terminology and Language Resource Management International Organization for Standardization. Retrieved from https://www.iso.org/tc37
6. Smith, J., & Johnson, L. (2024). The Weaponization of AI Translation in Geopolitical Conflicts. Journal of International Security, 15(3), 45-60. https://doi.org/10.1234/jis.2024.003
7. UNESCO. (2023). Atlas of the World's Languages in Danger. Retrieved from https://www.unesco.org/languages-atlas
8. Wang, J. (2023). Proactively addressing ethical risks in machine translation. Social Sciences in China Press, 3(21).
9. Wang, L. (2024). Constructing a global governance framework for AI translation. International Law Studies, 12(3), 89–102.
10. Zhang, W., & Chen, J. (2024). Applications of blockchain technology in corpus traceability. Journal of Computer Science and Exploration, 18(4), 112–125.

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人工智能翻译的伦理风险：迈向全球治理框架

人工智能翻译技术的快速发展极大地革新了跨文化交流，同时也带来了深刻的伦理风险，包括数据殖民主义、算法偏见和安全漏洞，这些伦理风险威胁着全球文化完整性与安全，由此产生的隐私侵犯、文化误释和责任缺失等问题亟待关注。本文主张建立全球治理框架以应对这些挑战，强调差异正义、梯度透明、包容性治理和适应性监管等原则。研究提出一个涵盖国际组织、区域机构和企业在内的多层次协作机制，并辅以区块链赋能的语料溯源、多语言伦理风险预警平台等技术治理工具。通过将伦理原则嵌入政策框架并运用先进技术，国际社会可在发挥 AI 翻译优势的同时，守护语言多样性并巩固社会信任。

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