INTRODUCTION

Navigating the Paradigm Shift–Translation Studies in the Age of AI

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1 The AI Revolution in Translation: Setting the Stage

The field of translation has undergone significant transformations throughout history, from the development of writing systems to the advent of computer-assisted translation tools. However, the recent emergence of artificial intelligence (AI), particularly large language models (LLMs) like ChatGPT (Lyu et al., 2023), marks an unprecedented paradigm shift in the translation landscape.

AI's impact on translation is multifaceted and profound. Neural machine translation (NMT) systems have dramatically improved translation quality, often approaching human-level performance for certain language pairs and domains (Liu et al., 2021). This has led to increased adoption of machine translation (MT) in professional workflows, with post-editing of MT output becoming a standard practice in many sectors of the language industry (Vieira et al., 2019).

The rapid advancement of LLMs has further accelerated this transformation. These models, trained on vast amounts of multilingual data, demonstrate remarkable capabilities in understanding context, generating coherent text, and even performing zero-shot translation (Jiang & Zhang, 2024). The implications of these developments are far-reaching, challenging traditional notions of translation expertise and reshaping the role of human translators.

As AI technologies continue to evolve, the language industry is experiencing a seismic shift (Moorkens et al., 2025). Traditional language service providers (LSPs) are adapting their business models to incorporate AI-driven solutions, while new players specializing in AI-powered language technologies are entering the market (DePalma, 2023). This changing landscape is characterized by: (1) increased automation of translation processes, leading to faster turnaround times and reduced costs; (2) a growing demand for post-editing and quality assurance services to

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refine AI-generated translations; (3) the evolution of translator roles to include new competencies in AI-assisted workflows; and (4) a shift towards more specialized and creative translation tasks that require human expertise beyond AI capabilities (Moorkens & Guerberof Arenas, 2024; Orlando et al., 2024). However, this AI revolution also presents challenges. Concerns about data privacy, ethical considerations in AI development, and the potential for AI to perpetuate or amplify biases in translation have come to the forefront (Li, 2023).

As we navigate this new era, it is crucial to critically examine the opportunities and challenges presented by AI in translation. This volume aims to contribute to this ongoing dialogue by exploring the multifaceted impact of AI on translation studies, practice, and education, providing insights into how the field can adapt and thrive in the age of AI.

2 Transforming the Nature of Translation

The integration of AI into translation practice is redefining fundamental aspects of the field (Yu & Liu, 2024). This section explores three key areas of transformation: the changing nature of translated objects, the shift in translation processes, and the evolving role of the translator in an AI-enhanced landscape.

2.1 Evolving Objects of Translation

The digital revolution, amplified by AI advancements, has profoundly expanded and diversified the spectrum of translatable content, reshaping the very notion of what constitutes a translatable object. While traditional written texts have long been the cornerstone of the translation industry, translators are now increasingly engaged with a vast array of digital and multimodal content. This shift reflects not only technological advancements but also changes in communication practices and content consumption patterns (O'Hagan, 2020; Jiménez-Crespo, 2024).

One significant development is the surge in dynamic and real-time content. The proliferation of regularly updated websites, mobile applications, live-streaming media, and interactive platforms requires translators to adapt to content that is fluid and continuously evolving (Gambier, 2016). This transition from static texts to dynamic digital content presents unique challenges in maintaining consistency and coherence across multiple versions and channels. Translators must become adept at using sophisticated content management systems and leverage tools that facilitate version control and real-time updates to manage these evolving texts effectively (Pielmeier & O'Mara, 2020).

Moreover, the boundaries of translation have extended beyond text to encompass various multimedia elements, including audio, video, and interactive graphics. Advances in technology have revolutionized the field of audiovisual translation (AVT), significantly impacting the volume and nature of work in the language industry. The increasing global consumption of multimedia content has led to

a higher demand for localization of films, television shows, video games, and online videos (Bernal-Merino, 2015). Translators and localization specialists are now routinely handling tasks such as subtitling, dubbing, voice-over, and audio description, which require specialized skills in synchrony, timing, and cultural adaptation peculiar to AVT (Bywood & Nikolić, 2024). Generative AI models like ChatGPT and DeepSeek are beginning to play a role in these areas, for instance, by generating draft subtitles or suggesting translations for complex multimedia interactions (Chen & Wu, this volume).

The rise of user-generated content on social media and online forums has also introduced a vast amount of informal, colloquial, and culturally nuanced language into the translation landscape (Ding et al., 2021). Translators now frequently deal with content that includes slang, idiomatic expressions, memes, and emojis—elements deeply rooted in specific cultural contexts and often resistant to straightforward translation. The sheer volume of user-generated content and its rapid dissemination necessitate swift yet culturally sensitive translation approaches that can capture the intended meaning and tone (Lee & Wang, 2022). The increased demand for translating this type of content has further diversified the types of materials that translators engage with on a regular basis.

Emerging communication platforms are also enabling new forms of interlingual interaction, such as near-simultaneous translation of video calls and multilingual chatbots (Sindoni, 2023). While these technologies have been developing for some time, recent advancements have improved their practicality and integration into everyday communication tools. These innovations push translators and language professionals to consider not only linguistic transfer but also the integration of translation into user experiences across various digital interfaces, making usability and accessibility key considerations in the translation process (O'Hagan, 2020).

Furthermore, the increasing globalization of business and the expansion of e-commerce have led to a surge in the need for localization of digital content, including websites, apps, and marketing materials (Jiménez-Crespo, 2024). This trend has made website and software localization a substantial area of work within the language industry, requiring translators to possess technical skills and an understanding of coding constraints. AI technologies, particularly Generative AI, are being utilized to automate aspects of localization, such as generating multilingual content and personalizing user experiences (Lambson & Han, this volume). The proportion of work involving localization has grown considerably, reflecting the necessity for companies to reach international markets effectively.

2.2 Transforming Translation Processes

The integration of AI, especially Generative AI models, into translation workflows has revolutionized translation processes (Moorkens & Guerberof Arenas, 2024). NMT systems have significantly improved the quality of machine-generated translations, producing more contextually appropriate and fluent outputs (Koehn, 2020).

Generative AI models extend these capabilities by generating translations that can handle more complex and nuanced language, although challenges remain in terms of consistency and accuracy (Lyu et al., 2023).

This advancement has led to the emergence of new translation workflows, where human translators collaborate closely with AI systems. Post-editing of machine translation output has become a standard practice in many sectors of the translation industry (Vieira et al., 2019). This collaborative process involves evaluating and refining AI-generated translations to meet specific quality standards and client requirements. The efficiency gained through this human–AI collaboration allows for faster turnaround times and the ability to handle larger volumes of content (Jia & Sun, 2023).

AI technologies have also enabled real-time translation in various contexts, from live subtitling to simultaneous interpreting in multilingual meetings (Wang & Yang, 2019). Generative AI models are being explored for their potential to improve the quality and responsiveness of these services, although real-time applications pose significant challenges in terms of computational resources and latency. This immediacy introduces new challenges in ensuring accuracy and appropriateness in real-time scenarios, necessitating robust quality assurance mechanisms.

Furthermore, AI offers advanced tools for terminology management, consistency checks, and quality assurance (Kappus, 2024). These tools can detect inconsistencies, suggest alternative phrasings, and learn from translators' inputs to improve future translations, enhancing the overall quality and efficiency of the translation process. Generative AI models can assist in generating glossaries or proposing style guidelines based on large datasets, supporting translators in maintaining consistency across projects.

However, the integration of AI into translation processes also raises concerns about data security, privacy, and ethical considerations (Li & Liu, this volume). The use of AI tools requires careful management to protect sensitive information and ensure compliance with legal and professional standards.

2.3 Redefining the Role of the Translator

As AI reshapes translation processes, the role of the translator is evolving from that of a sole language converter to a multifaceted language professional equipped to operate in an AI-enhanced environment (Lee, 2023). Translators are now expected to be proficient in using AI tools, guiding and supervising machine translation outputs, and making critical decisions that machines cannot.

The shift towards post-editing skills is significant. Translators must develop expertise in quickly identifying errors in AI-generated texts, understanding the logic behind machine translations, and correcting issues efficiently while maintaining the intended meaning and style (Vardaro et al., 2019). This requires not only linguistic proficiency but also a deep understanding of how AI systems function and the types of errors they are prone to make.

Translators are increasingly taking on roles as language consultants, cultural mediators, and even data curators. They provide value by addressing nuanced linguistic and cultural aspects that AI systems struggle with, such as idioms, humour, tone, and context-specific references. Their human insight ensures that translations are not only accurate but also culturally appropriate and resonant with the target audience (Orlando et al., 2024). In addition, translators may contribute to training AI systems by providing high-quality data and feedback, thus enhancing the performance of these models.

The skill set required for translators is expanding beyond linguistic proficiency to include technological literacy, adaptability, and continuous learning. Proficiency in using Computer-Assisted Translation (CAT) tools, understanding AI and machine learning concepts, and staying updated with the latest technological advancements are becoming essential (Pym & Hao, 2025). The profession is becoming more interdisciplinary, blending language expertise with knowledge of computational tools, data analysis, and even ethical considerations related to AI use.

3 Reshaping Translation Studies

As AI reshapes translation practice, Translation Studies as an academic discipline must evolve accordingly. This section examines four critical areas of adaptation: the reevaluation of core concepts and theories, the expansion of research objects and scope, the innovation of research methodologies, and the transformation of translator education. These changes are essential for maintaining the relevance and vitality of the discipline in an AI-enhanced landscape.

3.1 Reevaluating Core Concepts and Theories

Traditional translation theories have been deeply rooted in human cognitive processes and linguistic capabilities, emphasizing foundational concepts such as *equivalence*, *fidelity*, and the translator's role as an active mediator between source and target texts. The emergence of AI-assisted translation, particularly through Generative AI models, challenges these concepts by introducing non-human cognitive elements into the translation process (Koehn, 2020; O'Hagan, 2020).

The notion of *equivalence*, a central tenet in Translation Studies, becomes increasingly complex in the context of AI-generated translations. Equivalence has traditionally been understood as achieving semantic and stylistic correspondence between the source and target texts. However, AI systems, operating on statistical models and large datasets, may produce translations that are grammatically correct and fluent yet lack cultural nuance or fail to capture the pragmatic intent of the original message (Sheng & Kong, 2023). This raises questions about how equivalence should be defined and assessed when the translation is produced by a machine without human interpretive understanding.

Similarly, the concept of *fidelity*, traditionally understood as loyalty to the source text and the author's intended meaning, requires reevaluation in the realm of AI-assisted translation. AI systems generate translations based on algorithmic predictions derived from patterns in the data they have been trained on, rather than through an interpretive act of understanding (West et al., 2023). Consequently, these translations may not fully align with the specific context, tone, or subtleties intended by the original author, leading to potential misrepresentations of the source text.

These challenges highlight the necessity for new theoretical frameworks that can accommodate the complexities introduced by AI in translation. Researchers must develop theories that account for the *hybrid nature* of contemporary translation processes, which often involve a synergy between human translators and AI technologies. Such frameworks should recognize translation as an increasingly collaborative process that integrates human creativity, cultural competence, and ethical judgment with machine efficiency and consistency.

For example, the concept of the translator's *agency* requires reevaluation. In a landscape where AI systems generate initial translations, the human translator's role shifts towards post-editing and quality assurance (Herbig et al., 2019). Theories must therefore address the mediator's new role in refining machine output, ensuring cultural relevance, and managing ethical considerations such as bias and transparency.

3.2 Expanding Research Objects and Scope

The advent of AI, particularly Generative AI models, has significantly broadened the research objects and scope within Translation Studies. This technological surge compels the field to explore new territories while reimagining traditional areas of inquiry. The expansion reflects the dynamic interplay between technological advancements and the enduring human elements of translation, bridging the gap between theoretical constructs and practical applications.

One of the most prominent new research objects is the human–AI collaborative translation process. Researchers (e.g., Zou et al., this volume) are now investigating the cognitive processes involved when translators interact with AI-generated content, examining aspects such as decision-making patterns, error recognition, and the development of new translation strategies tailored to post-editing tasks. This research sheds light on the changing nature of translation work, highlighting how translators adapt their practices in response to AI assistance. It also contributes to the ongoing refinement of AI translation tools, exemplifying how theoretical insights can directly inform practical tool development.

The scope of research has expanded to include the analysis of large-scale translation data generated by AI systems. Corpus-based studies have taken on new dimensions, with researchers exploring patterns in machine translations across various language pairs and domains (e.g., Zhu, 2024). This big data approach allows for the

identification of trends in translation practices, the evaluation of AI performance across different text types, and the development of more nuanced quality assessment metrics for both human and machine translations. Findings from these studies are increasingly applied in industry settings, demonstrating a clear bridge between academic research and professional practice.

The notion of "translatorial agency" (Kaindl & Evdokimov, 2025) has emerged as a critical research object in the AI era. Researchers are investigating how the integration of AI tools is reshaping translators' decision-making processes, creativity, and professional identity (Lee, 2023). This line of inquiry bridges theoretical concepts of translator autonomy and agency with the practical realities of AI-assisted translation workflows. It informs academic discourse on the translator's evolving role and provides valuable insights for professional training programs, emphasizing the importance of developing skills that enable effective collaboration with AI systems.

The expansion of research objects also reflects a growing interest in interdisciplinary approaches. Translation Studies is increasingly engaging with fields such as cognitive science, neurolinguistics, and human–computer interaction to gain deeper insights into the translation process in the age of AI (O'Brien, 2020). This cross-pollination of ideas is leading to innovative research methodologies and theoretical frameworks that can better account for the complexity of modern translation practices. These interdisciplinary collaborations often result in practical applications, such as improved AI algorithms or more effective translator training techniques.

Paradoxically, the rise of AI has also renewed interest in uniquely human aspects of translation. Research on creativity in translation, the handling of cultural nuances, and the translation of highly context-dependent content has gained new relevance as scholars seek to delineate and understand the areas where human translators continue to excel over machines (Guan, 2024). This research is directly informing industry practices, particularly in areas like literary translation and transcreation, where human expertise remains crucial. It underscores the irreplaceable value of human judgment, creativity, and cultural competence in producing high-quality translations that resonate with target audiences.

Importantly, the bridging of theory and practice is evident in the increasing collaboration between academia and industry. Research projects are increasingly being designed with direct input from translation companies and technology developers, ensuring that theoretical advancements have practical applications (Doherty, 2020). Conversely, challenges encountered in professional settings—such as handling AI-generated errors, addressing ethical concerns in AI use, and meeting evolving client expectations—are feeding back into academic research, shaping new research questions and methodologies. This synergy enhances the relevance of Translation Studies, fostering innovations that benefit both scholarship and the profession.

This broadening of research objects and scope in Translation Studies, coupled with a concerted effort to bridge theory and practice, reflects the field's adaptability

and its commitment to comprehensively understanding the multifaceted nature of translation in the AI era.

3.3 Innovating Research Methodologies

The integration of AI technologies into the field of translation has opened up unprecedented possibilities for research methodologies within Translation Studies. While Translation Studies has strong roots in the humanities, employing interpretative analyses and case studies, it has also increasingly incorporated social sciences methodologies. The field has evolved to embrace a wide range of approaches, including both qualitative and quantitative methods from linguistics, sociology, psychology, and other disciplines. The advent of AI introduces innovative tools for data analysis and interpretation that complement and enhance these existing methods, further expanding the interdisciplinary nature of Translation Studies (Karjus, 2023).

One of the most significant innovations is the ability to process and analyse vast amounts of translation data at unparalleled speeds. AI-powered tools now enable researchers to examine large-scale corpora, including parallel texts, multilingual content, and even real-time translation streams. This capability has propelled corpus-based studies into new dimensions, allowing for comprehensive analyses of translation phenomena across diverse linguistic and cultural contexts. Researchers can now investigate patterns and trends on a scale previously unimaginable, facilitating more robust and generalizable findings (Tekwa, 2025).

Machine learning algorithms have become instrumental in identifying patterns and trends in translation practices that may not be immediately apparent to human researchers. These algorithms can detect subtle shifts in translation strategies, stylistic variations, and even translator behaviour across large datasets. For instance, researchers can now track the evolution of translation norms over time or across different text types with greater precision and breadth than ever before.

The innovation in research methodologies is particularly evident in the application of LLMs to both quantitative and qualitative research. In quantitative studies, LLMs have revolutionized data analysis processes by assisting in writing scripts in R and Python for data processing and statistical analysis. Researchers can utilize LLMs to automate tasks such as data cleaning, coding, and complex statistical modelling. This advancement significantly reduces the time and effort required for these tasks, lowering barriers to conducting large-scale quantitative analyses in Translation Studies and enabling researchers to focus more on interpreting results and theoretical implications.

For qualitative research, LLMs offer substantial benefits in coding and analysing various types of data (Tai et al., 2023). This is particularly valuable when processing rich textual data such as interview transcripts, think-aloud protocols, reflection journals, diaries, and open-ended survey responses. LLMs can assist in identifying themes, categorizing responses, and even generating initial code

structures across these diverse data sources. While human oversight remains crucial to ensure contextual understanding and interpretive accuracy, this AI assistance can significantly accelerate the often-time-consuming process of qualitative data analysis.

The field has also seen a surge in the use of natural language processing techniques for translation quality assessment (Sun, 2025). AI-driven algorithms can now evaluate translations based on various parameters such as fluency, adequacy, and consistency across large volumes of text. This approach not only allows for more objective and scalable quality assessments but also enables researchers to identify patterns in translation quality that may be linked to specific linguistic features, text types, or translation strategies.

The rise of AI has spurred the development of new experimental paradigms in Translation Studies. Researchers are designing studies that directly compare human translations with AI-generated ones, or that examine the outcomes of various human–AI collaborative translation scenarios. These experiments often involve sophisticated statistical analyses and machine learning techniques to uncover subtle differences in translation quality, efficiency, and creativity.

The integration of AI-assisted research methods, particularly through the use of LLMs, is likely to encourage more researchers to engage in empirical studies, potentially broadening the methodological landscape of Translation Studies while complementing existing analytical approaches. This shift towards more data-driven and AI-assisted methodologies represents a significant evolution in the field, offering new ways to explore and understand the complexities of translation in the digital age.

3.4 Reimagining Translation Education and Training

Preparing future translators for an AI-enhanced environment necessitates a transformation in education and training. Traditional curricula that focus solely on linguistic competence and translation theory are no longer sufficient. Educational programmes must integrate AI and technological training, equipping students with the necessary skills to navigate the modern translation landscape effectively (Pym & Hao, 2025).

Integrating AI into translation curricula involves teaching students how to use MT tools, post-editing software, and other technological resources effectively. Students should gain hands-on experience with AI systems, understanding both their capabilities and limitations. This practical knowledge ensures that graduates are prepared to work seamlessly with AI technologies in professional settings, enhancing their employability and effectiveness in the industry.

Developing new competencies extends beyond technical skills. Critical thinking, problem-solving, and adaptability become increasingly important as translators must make nuanced judgments about when and how to intervene in AI-generated translations. Ethical training is also essential, as translators need to be aware of

issues related to data security, confidentiality, and the potential biases embedded in AI systems.

Educational institutions can foster these competencies by adopting interdisciplinary approaches. Collaborations with departments of computer science, ethics, and cognitive science can provide students with a well-rounded education. Courses on computational linguistics, data analysis, and AI ethics complement traditional Translation Studies, creating a comprehensive curriculum that addresses the demands of the contemporary language industry.

Furthermore, educators should emphasize lifelong learning. The rapid pace of technological advancement means that professionals must continually update their skills and knowledge. Encouraging a mindset of ongoing education prepares students to remain relevant and effective throughout their careers.

4 The Future of Translation Studies in the AI Era

The integration of AI into translation practices and research has initiated a profound transformation in Translation Studies, presenting both immediate opportunities and long-term challenges that may reshape the discipline's landscape.

4.1 Short-Term AI-Driven Research Boom

In the near future, Translation Studies is poised to experience a significant expansion in research scope and depth, driven by the rapid integration of AI technologies. This growth phase, likely to span the next decade or two, is characterized by an unprecedented surge in research questions and methodological innovations.

Key areas of focus include the examination of AI–human collaboration in translation processes, the analysis of large-scale translation data through corpus-based studies, the ethical implications of AI in translation, and the technological integration in pedagogy.

This period of intense research activity not only expands our knowledge base but also reshapes the identity of Translation Studies. Traditionally rooted in the humanities, the field is increasingly positioned at the intersection of humanities, social sciences, and technology. This multidisciplinary approach attracts a new generation of scholars and fosters innovative collaborations, yielding insights that extend beyond translation into the broader realm of human–AI interaction in language and communication (O'Hagan, 2020). The integration of AI technologies encourages researchers to bridge traditional interpretative analyses with data-driven methodologies from social sciences and computer science, enriching the field with diverse perspectives and advancing both its theoretical and practical dimensions.

4.2 Long-Term Challenges and Potential Decline

Despite the immediate surge in research opportunities, Translation Studies faces significant long-term challenges that could lead to a decline in the discipline's

prominence and distinctiveness. As AI systems continue to advance—approaching or even surpassing human-level translation capabilities in many domains—the field may struggle to maintain its relevance.

A primary concern is the changing landscape of the translation job market. With AI becoming increasingly proficient in handling a wide range of translation tasks, the traditional role of human translators is being redefined. This shift is evident in the growing emphasis on post-editing and quality assurance roles rather than primary translation work. The potential reduction in traditional translation jobs could result in fewer students pursuing translation studies, impacting enrolment numbers and, consequently, the viability of academic programs.

This scenario aligns with Pym's (2024) sobering projection for the discipline's future. He argues that once there is a widespread belief that future employment opportunities for translators are diminishing, a cascade of effects could follow: declining student enrolments, reduced academic positions, dwindling readership for research, and ultimately, the potential marginalization of Translation Studies as an independent field of study. This concern is not merely speculative; observable trends support it. For instance, a leading Translation and Interpreting program at a Beijing university, which typically recruits 120 Master of Translation and Interpreting (MTI) students annually, experienced a sudden one-third decrease in applicants in 2023. While the exact reasons for this decline are unclear, it may be linked to the emergence of large language models like ChatGPT, reflecting a shifting perception of the field's future prospects.

The evolution of AI capabilities also challenges the relevance of research areas that have been central to Translation Studies. Traditional inquiries into translation processes, strategies, and cross-cultural communication might increasingly be addressed through computational and algorithmic approaches. The prominence of technology-driven solutions could diminish the perceived value of human-centred research methodologies.

Furthermore, as AI systems become more adept at handling nuanced and context-dependent translations, the unique insights provided by human translators may be undervalued. This shift could lead to a reduction in funding for research focusing on the human aspects of translation, as stakeholders prioritize technological solutions over human-centred approaches. Consequently, areas of research that emphasize the cultural, ethical, and interpretive dimensions of translation might become marginalized.

The integration of Translation Studies into broader fields such as computational linguistics, artificial intelligence, or digital humanities presents both opportunities and challenges. While interdisciplinary collaboration enriches the field, there is a risk that Translation Studies could lose its status as a distinct academic discipline. Becoming a subfield within these larger domains might result in a loss of specialized knowledge and a reduction in translation-focused research opportunities.

4.3 Opportunities for Adaptation and Reinvention

Nevertheless, the AI era also presents significant opportunities for Translation Studies to adapt and reinvent itself, ensuring its continued relevance and vitality.

Embracing technological advancements while emphasizing the unique value of human expertise is key to the field's future.

One promising direction is the development of new specializations within Translation Studies that focus on the interface between human and AI translation processes. This could include areas such as AI-assisted translation workflow optimization, the development of ethical guidelines for AI use in translation, and the study of cognitive processes in human–AI collaborative translation. By positioning itself at the forefront of these emerging fields, Translation Studies can maintain its relevance and attract students and researchers interested in the cutting edge of language technology.

The field also has the opportunity to intensify its focus on areas where human expertise remains irreplaceable. Literary translation, transcreation, and highly specialized or sensitive translations—such as those in diplomacy or law—continue to demand human insight and creativity. Emphasizing these domains in research and education highlights the enduring value of human translators in an AI-dominated landscape.

Another avenue for adaptation is the expansion of the translator's role to include that of a cultural mediator and communication specialist. As AI handles more routine translation tasks, human translators can focus on higher-level functions such as ensuring cultural appropriateness, managing multilingual communication strategies, and advising on cross-cultural issues in global business and diplomacy. Translation Studies programs can evolve to prepare students for these expanded roles, incorporating elements of intercultural communication, global business practices, and digital communication strategies into their curricula.

The adaptation of research methodologies to incorporate AI tools while maintaining rigorous academic standards presents another opportunity. By developing innovative research methods that leverage AI capabilities for data analysis and pattern recognition, Translation Studies can enhance its empirical foundations while continuing to provide nuanced, context-aware insights into translation phenomena.

Finally, fostering closer collaboration between academia and industry can help the field reinvent itself. Engaging with technology companies, LSPs, and international organizations ensures that research remains relevant to real-world translation challenges and that graduates are well prepared for the evolving demands of the language industry.

5 Overview of the Volume

This volume brings together cutting-edge research exploring the transformative impact of AI on Translation Studies. Through ten diverse chapters, it offers a comprehensive examination of how AI is reshaping translation practice, pedagogy, and research methodologies.

Chapter 1, *Transforming Translation: The Evolution and Impact of AI on Language Transfer and Communication*, by **Donald A. DePalma and Arle Lommel**,

traces the technological evolution of translation from ancient writing systems to the current AI-dominated era. They advocate for a broader understanding of translation as a multifaceted process of information transformation across various modalities, including text, speech, multimedia, and sensory data. The authors explore the opportunities and challenges presented by Generative AI and LLMs, emphasizing the evolving role of human translators and promoting an augmented approach where human expertise collaborates with AI tools to enhance global communication.

In Chapter 2, *Reframing Translation Expertise for the AI Era*, **Sanjun Sun and Ricardo Muñoz Martín** compare findings from a 2004 Spanish survey and a 2024 Chinese survey to explore the evolution of key abilities, skills, and knowledge essential for professional translators. Their analysis reveals shifts in the perception of translation expertise, highlighting the increased importance of professional competencies and well-being alongside the integration of technology into daily practice. The authors identify 12 prioritized abilities, skills, and knowledge, including language proficiency, domain knowledge, technological proficiency, and professional soft skills. They emphasize the need to update translation curricula to reflect these changes and underscore the enduring role of human translators in an AI-enhanced environment.

Chapter 3, *Localization in the AI Era*, by **Nick Lambson and Lintao Han**, examines the transformative impact of AI on the localization industry. The authors analyse key AI-driven innovations in MT, quality estimation, and content generation, while also addressing emerging concepts such as Language Data for AI (LD4AI) and Language Operations (LangOps). They investigate the evolving roles of localization professionals and the development of AI-enhanced tools, highlighting the industry's shift towards more data-centric and AI-integrated approaches. Through case studies of Duolingo and Baidu, the chapter illustrates practical applications of AI in language services and considers future directions for the industry.

Han Xu and Yujie Huang explore the integration of AI technologies into corpus-based translation and interpreting studies in Chapter 4, *Corpus-based Translation and Interpreting Studies in the Age of AI: Innovations and Challenges*. They highlight how AI, particularly generative AI and machine learning, can enhance methodological approaches by automating data collection, corpus compilation, annotation, and linguistic feature extraction. The authors discuss how these advancements address traditional challenges in CTIS, such as limited access to data and labour-intensive processes. While acknowledging AI's potential to process complex and non-standard linguistic data, they caution against overreliance on AI and emphasize the need for a balanced integration of AI and human expertise.

Chapter 5, *Translation Pedagogy in the AI Era: Design and Application of a ChatGPT-Powered Platform for Training and Feedback*, by **Simin Xu, Yifeng Sun, Yanfang Su, and Kanglong Liu**, presents an innovative AI-powered translation platform that integrates ChatGPT for translation training and feedback. The authors detail the platform's design, highlighting its user and administrator

interfaces, and discuss its potential applications in translation teaching and research. Through a pilot study, they provide empirical insights into students' engagement with ChatGPT-generated feedback, revealing both strengths and limitations of AI in translation pedagogy. The chapter critically examines challenges, ethical considerations, and future directions for AI integration in translation education.

In Chapter 6, *ChatGPT in Professional Translation: A Double-Edged Sword – Insights from Chinese Translators on Capabilities, Concerns, and Future Prospects*, **Yining Shi, Han Xu, Ho Ling Kwok, and Kanglong Liu** investigate the perceptions and experiences of professional Chinese translators regarding the use of ChatGPT in their translation practice. Their findings reveal that while translators widely acknowledge ChatGPT's usefulness in enhancing efficiency and productivity, they also express concerns about information security, reliability, handling of culturally nuanced content, and potential ethical issues. Despite these concerns, most translators are optimistic about integrating ChatGPT into their workflow, viewing it as a valuable tool that complements rather than replaces human translators.

Chapter 7, *Human Expertise vs. AI Efficiency: A Comparative Analysis of Student and ChatGPT Post-Editing*, by **Menglu Li and Dechao Li**, compares student post-editing (SPE) and ChatGPT-based post-editing (GPTPE) in Chinese-to-English translations of tourism texts. Using a mixed-methods approach, the authors analyse linguistic features and qualitative insights from student reflection reports. Their findings reveal that GPTPE outputs exhibit higher lexical diversity and density, while SPE outputs demonstrate greater genre sensitivity and cultural adaptation. The chapter highlights the complementary strengths of AI-efficiency and human expertise, underscoring the need for translation education to foster critical evaluation skills, creativity, and user-centred approaches.

Zhuojia Chen and Zhiwei Wu examine the potential of Generative AI in automatic subtitling in Chapter 8, *AI and Audiovisual Translation: Evaluating the Roles of GenAI Platforms and Prompts in Automatic Subtitling*. Through a comparative case study of fansubbers, ChatGPT, and Google Gemini, they evaluate how these sources handle common subtitling challenges like wordplay, multimodal humour, and orality features. The findings reveal that while GenAI models show promise in addressing some subtitling issues, they still fall short of human translators in creative problem-solving and cultural adaptation. The authors also explore the impact of different prompting strategies on GenAI performance and discuss practical implications for integrating GenAI into subtitling workflows.

Chapter 9, *Cognitive Processes of Post-Editing Generative AI: Examining Student Translators' Interactions with ChatGPT Outputs*, by **Longhui Zou, Michael Carl, and Jia Feng**, investigates the performance and behaviours of student translators in GPT-powered post-editing tasks. The study involves 30 participants completing light and full post-editing tasks on GPT-4 translations, using either a termbase or internet search. The results show that students effectively reduced errors compared to raw MT output, but performance declined when using internet

search versus a termbase. The authors underscore the importance of developing flexible post-editing strategies, enhancing error-handling capabilities, and improving research competence in translator education.

The volume concludes with Chapter 10, *Ethical Issues in Translation Education in the AI Era*, by **Bo Li and Yuan Liu**. This chapter critically examines the ethical challenges arising from the integration of AI, particularly LLMs and generative AI, into translation education. The authors discuss digital inequalities resulting from disparities in access to AI tools and explore issues of transparency in AI-assisted assessment. They propose strategies for teaching AI-related ethics, including developing digital reflexivity, critical thinking, and ethical decision-making skills. The chapter advocates for an integrated approach to professional ethics training, incorporating real-world scenarios and collaboration between academia and industry.

The process of compiling this volume has been a collaborative effort, enriched by multiple rounds of feedback and revision. We extend our sincere gratitude to all the contributors whose cutting-edge research forms the core of this book, as well as to the anonymous peer reviewers whose insightful comments have significantly enhanced the quality of each chapter. We are particularly indebted to Donald A. DePalma and Arle Lommel of CSA Research for their invaluable contribution in Chapter 1. Their expertise in market research and language services has greatly enhanced our understanding of the practical implications of AI in the translation industry. Special thanks also go to Libo Huang, Yanfang Jia, Nick Lambson, Tong King Lee, Junru Mo, Jiajun Qian, and Xiaojun Zhang for their invaluable input during the review process. We are deeply appreciative of the support and guidance provided by the editorial team at Routledge throughout the publication journey. This volume stands as a testament to the collective expertise and dedication of both academic researchers and industry professionals in addressing the transformative impact of AI on the field of Translation Studies.

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