

AI-Driven Quality Assurance in Translation: Tools and Techniques

Adeline H. Meyer

*Saarland University, Saarbrücken Campus, 66123 Saarbrücken,
Germany*

ORCID: <https://orcid.org/0009-0005-8190-6449>

Abstract

Translation transforms content from one language to another, retaining the source meaning. Quality assurance ensures the translation meets clients' expectations and end-users, as well as the expectations of translators themselves. QA checks translations against standards such as accuracy, fluency, readability, and style. Recently, AI and machine learning have dramatically changed the history of translation quality. They automate and enhance QA tasks, so the translation process is faster, more uniform, and adaptable. This chapter explores AI-powered QA tools and techniques. We'll review how AI and ML refine translation quality management, including neural machine translation, enhanced QA, domain adaptation, and feedback mechanisms. This chapter also examines the implications of AI in translation for stakeholders like translators, clients, and academics. The focus will be on the challenges and prospects AI brings to the translation industry.

Keywords: Artificial intelligence, Machine learning, Quality assurance, Quality assessment, Translation, Quality feedback

This is a Limited Preview of the Chapter.

To read the full-text chapter, get access by purchasing this chapter, or consider buying the complete book. If your library has a subscription to EBSCOhost, this chapter, including other chapters of the book, can be accessed through your library.

This chapter is a part of the book, '*Translating the Future: Exploring the Impact of Technology and AI on Modern Translation Studies*'

ISBN: 978-81-967805-9-3 (ebk)

ISBN: 978-81-967805-6-2 (pbk) | ISBN: 978-81-967805-5-5 (hbk)

The ebook (ebk), softcover (pbk), and hardcover print (hbk) of this book are available at:

<https://dx.doi.org/10.46679/9788196780593>

The book is also available on Amazon, Google Play Books, CSMFL Bookstore, and other leading book resellers and academic content vendors worldwide.

62 AI-Driven Quality Assurance

understanding of its implications and challenges for professionals and researchers in translation and quality assurance.

References

- Alwazna, R. Y. (2024). The use of automation in the rendition of certain articles of the Saudi Commercial Law into English: a post-editing-based comparison of five machine translation systems. *Frontiers in Artificial Intelligence*, 6. <https://doi.org/10.3389/frai.2023.1282020>
- Béchara, H., Orăsan, C., Parra Escartín, C., Zampieri, M., & Lowe, W. (2021). The Role of Machine Translation Quality Estimation in the Post-Editing Workflow. *Informatics*, 8(3), 61. <https://doi.org/10.3390/informatics8030061>
- Chen, X., & Shin, Y. (2023). Comparative Analysis of Post-editing Techniques for Chinese-to-English Translation Tasks: A Quasi-Experimental Study. *Yeongmi Eo'munhag - Han'gug Yeongmi Eo'mun Haghoe*, 149, 147–171. <https://doi.org/10.21297/ballak.2023.149.147>
- Deming, C., Khair, M. A., Mallipeddi, S. R., & Varghese, A. (2021). Software Testing in the Era of AI: Leveraging Machine Learning and Automation for Efficient Quality Assurance. *Asian Journal of Applied Science and Engineering*, 10(1), 66–76. <https://doi.org/10.18034/ajase.v10i1.88>
- Freeman, L., Rahman, A., & Batarseh, F. A. (2021). Enabling Artificial Intelligence Adoption through Assurance. *Social Sciences*, 10(9), 322. <https://doi.org/10.3390/socsci10090322>
- Hadi. (2021, February 10). *Harry Clark Translation*. Harry Clark Translation. <https://harryclarktranslation.co.nz/top-translation-quality-assurance-tools/>
- Han, L., Jones, G. J. F., & Smeaton, A. F. (2021, May 5). *Translation Quality Assessment: A Brief Survey on Manual and Automatic Methods*. ArXiv.org. <https://doi.org/10.48550/arXiv.2105.03311>
- Khinvasara, T., Ness, S., & Shankar, A. (2024). Leveraging AI for Enhanced Quality Assurance in Medical Device Manufacturing. *Asian Journal of Research in Computer Science*, 17(6), 13–35. <https://doi.org/10.9734/ajrcos/2024/v17i6454>
- Koponen, M. (2016). Is Machine Translation Post-editing Worth the Effort? A Survey of Research into Post-editing and

- Effort. *The Journal of Specialised Translation*, (25), 131-148. http://www.jostrans.org/issue25/art_koponen.pdf
- Lai, V., Smith-Renner, A., Zhang, K., Cheng, R., Zhang, W., Tetreault, J., & Jaimes, A. (2022). An Exploration of Post-Editing Effectiveness in Text Summarization. *Proceedings of the 2022 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies*. <https://doi.org/10.18653/v1/2022.naacl-main.35>
- Mishra, R. (2019, February 1). *Usage of Data Analytics and Artificial Intelligence in Ensuring Quality Assurance at Higher Education Institutions*. IEEE Xplore. <https://doi.org/10.1109/AICAI.2019.8701392>
- Pičuljan, N., & Car, Ž. (2023). Machine Learning-Based Label Quality Assurance for Object Detection Projects in Requirements Engineering. *Applied Sciences*, 13(10), 6234. <https://doi.org/10.3390/app13106234>
- Ramchand, S., Shaikh, S., & Alam, I. (2021). *Role of Artificial Intelligence in Software Quality Assurance*. 125-136. https://doi.org/10.1007/978-3-030-82196-8_10
- Ren, H., Lu, Q., Pang, J., & Ling, Y. (2021). Post-Translation Editing of Scientific and Technology Texts under Chesterman's Translation Norm. *Open Journal of Modern Linguistics*, 11(01), 49-56. <https://doi.org/10.4236/ojml.2021.111004>
- Schwartz, L. (2014). *Monolingual Post-Editing by a Domain Expert is Highly Effective for Translation Triage*. <https://aclanthology.org/2014.amta-wptp.3.pdf>
- Simon, L., Robert, C., & Meyer, P. (2021). Artificial intelligence for quality assurance in radiotherapy. *Cancer/Radiothérapie*, 25(6-7), 623-626. <https://doi.org/10.1016/j.canrad.2021.06.012>
- Vela-Valido, J. (2021). Translation quality management in the AI Age. New technologies to perform translation quality assurance operations. *Tradumàtica: Tecnologies de La Traducció*, 19, 93-111. <https://doi.org/10.5565/rev/tradumatica.285>
- Wang, L. (2023). *The Impacts and Challenges of Artificial Intelligence Translation Tool on Translation Professionals*. 163, 02021-02021. <https://doi.org/10.1051/shsconf/202316302021>

64 AI-Driven Quality Assurance

Yuan, Y. (2020). Comprehensive Teaching Quality Assurance with Artificial Intelligence Applications. *Journal of Physics: Conference Series*, 1575(1), 012204.

<https://doi.org/10.1088/1742-6596/1575/1/012204>

Ziganshina, L. E., Yudina, E. V., Gabdrakhmanov, A. I., & Ried, J. (2021). Assessing Human Post-Editing Efforts to Compare the Performance of Three Machine Translation Engines for English to Russian Translation of Cochrane Plain Language Health Information: Results of a Randomised Comparison. *Informatics*, 8(1), 9.

<https://doi.org/10.3390/informatics8010009>
