

Translation Tradeoffs in Human-machine Cooperation

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Abstract

A de facto human-machine cooperation relationship has become the elephant in the room for a while, but the current situation might not be exact and needs further examination. There are tradeoffs in human and machine translation, both approaches have its strength and weakness in particular circumstances, and neither under current conditions possess the ability to fully take over the role of the other. Through a brief exploration of current progress from researchers around the globe, the hypothesis is that there might be great potential for human-machine cooperation to balance the power between translation originalism and translation activism to achieve both efficiency and quality in human-machine cooperation.

Keywords

Human translation; Machine translation; Tradeoffs; Cooperation; Translation originalism; Translation activism.

1. Introduction

Läubli and other researchers have reassessed the current quality of machine translation through empirical study from various sources and confirmed remarkable progress has been made in machine translation; in some cases the gap between human translation and machine translation has been narrowed to a point of indistinguishable [1]. However, Läubli and other researchers also pointed out that human translation made fewer mistakes in general and machine translation performance highly depended on given context and it is not stable; evaluation and validation methods also played significant role in assessing translation quality [1]. Wu and their team's effort in human-machine cooperation showed that one of main obstacles for massive production of machine translation with Neural Machine Translation (NMT) was because it was not economical [2]. Taravella and their team claimed that the shortage of professional translators drove the demand for technological advancement in machine translation [3]. The issue related to human-machine cooperation might not only come from translation or linguistic but also could come from economic or other fields. According to Hassan and their team's findings, machine translation exceeds the level of novice translators and may even reach the professional level in some cases [4]. Progress made in machine translation based on existing investigations has been confirmed, but what limited its use in practical level is still worth studying and open for discussion.

2. Issue

Gupta and their team's findings in low source language translation such as Hindi raised alarms in machine translation's performance with inadequate database [5]. Ferreira and their team address the training issue of machine translation but showed promising result of high accuracy rate in high source language [6]. Nekoto and their team's case study in low source language group such as African languages further displayed machine translation's issues in dealing with low source language [7]. Machine translation might show great potential in a few high source

languages with relatively larger userbase, but it might still need human intervention even with high source language group. But is that a natural phenomenon or is machine translation has the ability to create snowball effect which further increase the gap between low source language group and high source language group? Or put it in a simple way, could machine translation actually be cooperative and active instead of just being supportive and passive? If so, then it may not be one-way impact of translation changing data collection, but could it be possible to be mutual impact of data collection changing translation in an aggressive manner?

3. Perspective

Wang and their team reexamined the general attitudes towards human-machine cooperation beyond the professional's perspective and includes general public and media, and their survey results showed more issues related to the use of machine translation; it has also been noticed that in their investigation of attitudes, political concern of social stability played significant role in decision making about introducing machine translation[8]. There could be a serious block to push automation which may replace low skill labor and related social services. In theory, human-machine cooperation could be a practical approach to ease the tension during the transitional period towards automation. But in reality, there might be more issues related to technological revolution which may change the way of life for thousands even millions of people. The spreading effect should not be underestimated, especially for those who has been in traditional mode of translation for decades including schools, government agency, private company and social services. Decades of ties and connections could be shifted to less involvement, social and psychological impact could not be precisely predicted, and further investigation is needed.

4. Tradeoff

Flemisch addressed the general issues related to tradeoffs in human-machine cooperation, which includes arbitration, mediation, dissonance, consonance and interference [9]. Fernandez believes connectivity and intelligence are two important parts to improve human-machine cooperation [10]. Li concludes that adaptability is the key to connect human and machine together for better performance [11]. Gal challenged the traditional idea that China has slow development in human-machine cooperation and through official report, his report showed bipartisan support in China to fully investigate social, ethical and economical impact from human-machine cooperation [12]. It can be confusing to use the word tradeoffs in a general level, but it involves constraint vision. Cooperation is not isolated case with two parties functioning like equations. In translation, pre-editing and post-editing are often used to improve translation quality, but this involves tradeoffs in interference and may even implies translation activism. What level of interference is acceptable is still open for discussion and may even involves ethical issues. Could translators process the original text for machine translation in order to boost quality and during the process changed even forged something that was not in the original document? Is consistency a tradeoff for efficiency? What are the tradeoffs for connectivity and intelligence if there is less human intervention? Zhu points out the significance of customization in general human-machine cooperation [13]. It could be an interesting approach in particular cases, but it could also means more interference from the third party which is the customer. This may further complicate the case in translation since there would be more conflicts among translator, customer, and machine translation.

5. Conclusion

The translation tradeoffs in human-machine cooperation may seem like a technical issue, but it might actually be a conflict of vision between translation originalism and translation activism. The idea of machine translation was generally accepted as reducing human labour or boost output but what it actually did, in a simple way, was to utilize existing data and apply it to the translation. The collected data could be interpreted as 'law'. What machine translation function might be more like a judge strictly following the rules without any modification of the existing 'law'. In some way, it can be said that machine translation could be more suitable to be the 'judge' if the 'law' is not with serious flaws. However, in reality this might not be the case, the 'law' even in legal circumstances might be deeply flawed, contaminated, outdated and even wrong. That is why human translator is needed and irreplaceable in this process because there is no guarantee what works in one case may function well in another, and each case is unique and different. Translation is fundamentally unpredictable just like the human being itself. The assumption that data can be collected might be right, and technical approach to perfect the methods should be encouraged, but meanwhile it should always be remembered that data cannot be fully collected just as knowledge cannot be fully gained in advance. Therefore, there is no 'dead' database but 'living' database. What has been said, done, or spoke can be changed, modified and improved, and machine translation is always one step behind human innovation or at least until AI can be achieved. Overall, the translation tradeoffs might be fundamentally a conflict of vision between translation originalism and translation activism, there is no correct answer about which one is better, but maybe only through human-machine cooperation can harmony be achieved and improved as means not ends, the translation itself is an living 'constitution' constantly needs amendment and an ongoing experiment not a finished, perfect and dead one. There might be great potential for human-machine cooperation to balance the power between translation originalism and translation activism to achieve both efficiency and quality in a foreseeable future. This potential trend might also demand further exploration since it might even have a greater social impact which could be universal in a more general level of human-machine cooperation in meta-analysis research. Due to the limit scope of this paper, the current progress cannot be thoroughly examined, and exceptions could be possible, but it is hoped that this humble paper might provide some insights for further study.

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