A critical perspective on the use of machine translation

CENTRE FOR TRANSLATION STUDIES
UNIVERSITY OF SURREY

Félix do Carmo

16 January 2023
All-Party Parliamentary Group on Modern Languages

1

1. Technological overpromises

CENTRE FOR TRANSLATION STUDIES
UNIVERSITY OF SURREY

» Amazement about NMT quality:
- We have never seen a machine outputting fluent language
- We did not know language could be a raw material (as threads in a weaving loom)
- No evidence that machines can **create** clothes autonomously (reach singularity)

» **NMT is not ready to be approved for generalised use**

» Quality of NMT:
- Every MT output can contain critical errors and "hallucinations"[1]
- MT output always contains more errors than human translation [2]
- Top quality scores: 90% [3]
  - One in each 10 words may be wrong, 10 in every 100 pages can be deceiving…
- The scores are not reproducible if the lab conditions change
  - Very high ecological impact

» **Machine translation should be called "artificial translation"** (not really translation) [4]

2

2. Social impact

CENTRE FOR TRANSLATION STUDIES
UNIVERSITY OF SURREY

» MT is widely used, because it is provided for free but with **no guarantees**
- Control mechanisms (e.g. reduce bias), manipulate outputs and can be used to **produce bias** [5]

» **Users take all the responsibility for the risk**
- Good uses of MT rely on risk management by users[6]
- Unaware and vulnerable users are not protected[7]
- Disadvantaged communities will always have lower quality MT[8]

» Use of MT by **professional translators**
- They decide to manage the risk
- They are hired as post-editors

» Post-editors become the "human-in-the loop"
- The sole human element: the **only liable link in the chain**

3

3. Economic models of value extraction

CENTRE FOR TRANSLATION STUDIES
UNIVERSITY OF SURREY

» Selling NMT as a technology is not viable
- Tech companies are becoming translation service providers or data management companies

» **Value extraction from data**
- All big corporations are involved in machine translation and natural language processing
- They extract value from this knowledge produced by creative work

» **Value extraction from human work**
- Quality is produced by translators/post-editors, not MT
- Post-editing is faster and cheaper than translation
- Translators are not being replaced by technology, their work is losing value (heteromation[9])

» Paradoxical business models:
- Distributed production
- Centralised data ownership and value extraction

4

4. Suggestions for regulation

CENTRE FOR TRANSLATION STUDIES
UNIVERSITY OF SURREY

» Considering that:
- We live in a **multilingual society**, in which understanding should be global
- Only **human translation** gives guarantees of **proper communication flows**
- Language and **translation data are very valuable assets**
- Technology is **an instrument** (as "neutral" as a hammer)
- **Artificial translation or is not a sign of intelligence** or language competence

» **Regulation for fair use of AI and MT** should:
- Protect **consumers'** rights and liabilities in the face of unknown risks
- Protect **workers'** rights and liabilities in distributed production models
- Defend **society's right of ownership** of its knowledge
- Create **safeguards against manipulation** of the above rights for unchallenged private use
- Protect research that focuses on risks, as this is an **investment on security**

» Two suggestions:
- Create a "**seed bank**" for human language and translation data
- Require a **trackable stamp** for AI/MT text

5

References

CENTRE FOR TRANSLATION STUDIES
UNIVERSITY OF SURREY

1. Khetam Al Sharou and Lucia Specia. 2022. A Taxonomy and Study of Critical Errors in Machine Translation. In *Proceedings of the 23rd Annual Conference of the European Association for Machine Translation,* pages 171–180, Ghent, Belgium. European Association for Machine Translation. https://aclanthology.org/2022.eamt-1.20/
2. Tom Kocmi, Rachel Bawden, Ondrej Bojar et al. 2022. Findings of the 2022 conference on machine translation (wmt22). In *Proceedings of the Seventh Conference on Machine Translation,* 1–45. Abu Dhabi, December 2022. Association for Computational Linguistics. URL: https://aclanthology.org/2022.wmt-1.1.
3. Michael Hanna and Ondřej Bojar. 2021. A Fine-Grained Analysis of BERTScore. In *Proceedings of the Sixth Conference on Machine Translation,* pages 507–517, Online. Association for Computational Linguistics. https://aclanthology.org/2021.wmt-1.59/
4. Félix do Carmo. 2022. Debunking a few machine translation myths: From 'zero-shot translation' to 'human parity' and 'no language left behind', *CTS Surrey Convergence lecture series.* Available at: https://youtu.be/Qap07fV5IgI.
5. Eugene Bagdasaryan and Vitaly Shmatikov. 2021. Spinning Language Models: Risks of Propaganda-As-A-Service and Countermeasures. https://doi.org/10.1109/sp46214.2022.9833572.
6. Mary Nurminen. 2019. Decision-making, Risk, and Gist Machine Translation in the Work of Patent Professionals. In *Proceedings of the 8th Workshop on Patent and Scientific Literature Translation*, pages 32–42, Dublin, Ireland. European Association for Machine Translation. https://aclanthology.org/W19-7204/.
7. Carmen Canfora and Angelika Ottmann. 2020. Risks in neural machine translation, *Translation Spaces,* 9(1), pp. 58–77. https://doi.org/10.1075/ts.00021.can.
8. Team NLLB, Marta R Costa-Jussà, James Cross, et al. 2022. No Language Left Behind: Scaling Human-Centered Machine Translation. https://ai.facebook.com/research/publications/no-language-left-behind-scaling-human-centered-machine-translation.
9. Hamid R. Ekbia and Bonnie A. Nardi. 2017. *Heteromation, and Other Stories of Computing and Capitalism.* Cambridge, Massachusetts. The MIT Press.

6

Thank you.

f.docarmo@surrey.ac.uk

CENTRE FOR TRANSLATION STUDIES
UNIVERSITY OF SURREY

7