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First WMT Shared Task on Sign Language Translation (WMT-SLT22)

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Abstract

This paper is a brief summary of the First WMT Shared Task on Sign Language Translation (WMT-SLT22), a project partly funded by EAMT. The focus of this shared task is automatic translation between signed and spoken languages. Details can be found on our website¹ or in the findings paper (Müller et al., 2022).

1 Project duration

The project ran roughly from July 2021 (when the organizing committee was assembled) to December 2022 (presentation of final results at WMT).

2 Description of the project

This project entailed planning and realizing a WMT shared task on automatic translation between signed and spoken² languages. Recently, Yin et al. (2021) called for including signed languages in natural language processing (NLP) research. We regard our shared task as a direct answer to this call. While WMT has a long history of shared tasks for spoken languages (Akhbardeh

et al., 2021), this is the first time that signed languages are included in a WMT shared task.

The task is novel in the sense that it requires processing visual information (such as video frames or human pose estimation) beyond the well-known paradigm of text-to-text machine translation (MT). As a consequence, solutions need to consider a combination of NLP and computer vision (CV) techniques.

The task featured two tracks, translating from Swiss German Sign Language (DSGS) to German and vice versa.

3 Objectives

The project envisioned that there would be benefits both for Deaf sign language users and for the research community.

For Deaf communities, the shared task aimed for better access to linguistic tools, including MT, in their native languages and also to improve recognition for sign languages.

For the MT research community, our goal was to include sign languages in WMT shared tasks as a way of informing researchers about sign languages and boosting research on sign language translation.

More concretely, we were looking to produce public benchmark data for MT systems, translations by many state-of-the-art systems and judgments of translation quality by humans. For sign languages, such resources did not exist before the shared task.

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¹<https://www.wmt-slt.com/>

²In this paper we use the word “spoken” to refer to any language that is not signed, no matter whether it is represented as text or audio, and no matter whether the discourse is formal (e.g. writing) or informal (e.g. dialogue).

4 Final results

Main outcome Seven teams (including one from the University of Zurich whose submission we consider a baseline) participated in our task. All of them submitted to the DSGS-to-German track, while there were no submissions for the second translation direction, presumably because this direction is more challenging.

Seven teams is a high turnout, considering that other comparable efforts (such as a shared task on Taiwanese sign language translation co-located with LoResMT 2021 (Ojha et al., 2021) or the workshop on sign language recognition, translation and production (SLRTP) 2022³) had fewer participants.

We presented the final results at WMT 2022 in Abu Dhabi in December 2022⁴. The shared task was well received and sparked considerable interest in the machine translation community.

Other important artifacts Besides a system ranking and system papers describing state-of-the-art techniques, our shared task made the following scientific contributions: novel corpora, reproducible baseline systems and new protocols and software for human evaluation. Finally, the task also resulted in the first publicly available set of system outputs and human evaluation scores for sign language translation.

5 Funding agencies

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³<https://slrtp-2022.github.io/>

⁴<https://www.project-easier.eu/news/2023/01/09/easier-at-emnlp-and-wmt-2022/>