

AI-powered interpreting: The impact of automatic speech recognition (ASR) on the work of simultaneous interpreters

1. Aim of the project and description of previous research

Simultaneous interpreting is oftentimes deemed one of the most cognitively demanding tasks people are able to perform, which stems from the need of processing information in two different languages at the same time as well as the fact that interpreters juggle multiple highly engaging activities such as listening to the source speech, performing short-term memory operations and expressing the meaning in the target language. Given the multitude and difficulty of the processes involved in simultaneous interpreting, it appears that computer-assisted interpreting tools, also known as CAI tools, may prove invaluable to interpreters. The aim of this project is to study the impact of automatic speech recognition (ASR) – an AI-powered feature offered by the most advanced CAI tools that provides live transcription of numbers and terminology with its translation equivalents – on the work of professional simultaneous interpreters and interpreting trainees. I will verify whether the ASR function serves its purpose and increases interpreting accuracy. Moreover, I will investigate how the use of ASR affects the level of cognitive load during simultaneous interpreting. I will also check whether prior training in ASR has a positive impact on interpreting accuracy, cognitive load and user experience as compared to using the feature with no prior background in such technology.

Studies conducted thus far unequivocally show a positive effect of ASR on the work of simultaneous interpreters. For instance, ASR has been found to increase the interpreting accuracy of numbers, at the same time reducing the score of errors and omissions. Moreover, previous research indicates that ASR facilitates the interpreting process, especially in terms of interpreter's distribution of attention as well as regulation of the ear-voice span, understood as the time lag between the source text input and its interpretation. Nevertheless, it must be noted that the participants of the vast majority of previous studies were students, who do not constitute a fully representative sample of the interpreting community due to their limited professional experience. In addition, most studies included a small number of participants, which may have distorted the obtained results. It is also worth noting that research on the impact of ASR on the interpreting process is extremely scarce. Thus, further studies are necessary to obtain a better picture of AI-based CAI tools in simultaneous interpreting.

2. Project methodology

This project envisages an experimental study involving: “traditional” simultaneous interpreting (without technological support), ASR-supported simultaneous interpreting without prior exposure to such technology, a training session in ASR, ASR-supported simultaneous interpreting after a training session. Three types of data will be collected during the study: (1) recordings of interpretations, which will allow for measuring the interpreting accuracy of the experimental stimuli; (2) eyetracking data, which will allow for measuring cognitive load; (3) data from questionnaires that will serve as a subjective measure of user experience and the participants' feelings towards ASR in interpreting. The analysis will be conducted based on a theoretical model of cognitive load in interpreting and the Colavita effect, which has so far been observed in simultaneous interpreting with text.

3. Expected results and the significance of the project

I predict that I will observe a difference in the impact of ASR on professional interpreters and interpreting trainees. I expect that: (1) ASR will increase interpreting accuracy in both groups; however, this effect will be most noticeable for trainees, who are less experienced than professionals; (2) ASR will increase cognitive load in both groups; yet again, this effect will be most evident for trainees due to their lower experience; (3) training in the ASR function will positively affect interpreting accuracy, user experience and the level of cognitive load during simultaneous interpreting.

This project will be the first to compare the impact of ASR on the work of interpreting trainees and professional interpreters, extending the results of previous works to a more representative group of participants. By using a novel eyetracking methodology, the project will expand our knowledge on the cognitive load imposed by interaction with ASR and make a valuable contribution to the discussion on the validity of CAI tools. Drawing on a well-grounded theoretical framework, the study will provide valuable insight into the multimodal processing, which is an inherent part of simultaneous interpreting. Thus, the project will shed new light on the process and product of simultaneous interpreting with the support of an AI-powered ASR tool.