SiMAX - The Sign Language Avatar

Results in Brief

Animated figure translates digital content into sign language

EU-funded researchers have developed an avatar that will help improve accessibility of the deaf community to digital content and public information.

DIGITAL ECONOMY

© Sign Time

Around 750 000 deaf people live in Europe, but many have difficulty in reading text and approximately 70 % are functionally illiterate ↗. Sign language is therefore necessary for barrier-free communication with many members of the deaf community.

Although the importance of accessibility in society is increasingly recognised, using traditional methods only enables a very small amount of digital information to be understood by deaf people. To make more information comprehensible, companies, the media, public authorities, etc. must have it translated into sign language. However, conventional methods of translation using interpreters in film studios is time-consuming and expensive.

In the EU and around the world, a large number of regulations require barrier-free communication. Every day, millions of pages of text and hours of video and other sources of information are published. But to translate even a fragment of this material into sign language, automatic and semi-automatic signing systems are needed.

An adaptive approach

The [SiMAX](#) ↗ project addressed this problem by developing an innovative, easy-to-use translation device. "We combined our expertise in sign language translation and ICT tool development to create a semi-automated sign-language translation system and make it available as a cloud service," states Georg Tschare, project coordinator and CEO of Austrian SME Sign Time.

The translations are represented by an animated figure or [avatar](#) ↗. A human translator only needs to adjust the translations suggested by smart algorithms on a 'learning' database; the resulting video shows the avatar signing. The process is flexible for future adaptations, and less time- and cost-consuming than classical translation videos produced in a studio with human translators signing.

Feedback from the deaf community was used to develop the avatar, which met all the requirements of the target group and received extremely high approval ratings. "We have developed a quality management system for the creation of sign language vocabulary, which is managed by a deaf sign-language translator," explains Tschare. "Since they use sign language themselves, they have better insight into this activity."

Using the SiMAX technology, it is possible to translate mass content into sign language, thanks to the very low costs. "In the long run, it should be possible to translate almost any text into sign language. Since our system is adaptive, it becomes better with each application – and thus faster and more economical. This will make it possible in the long term to make all digital content on the web accessible to the deaf community around the world," observes Tschare.

Multiple uses

The sign language translation can be integrated into websites as a video or inserted into existing videos; SiMAX evidently has many applications other than translating content for the TV or films. It can make websites accessible to deaf people, translating information about products and services and guiding customers through online shops in sign language.

Furthermore, it can be used to make important information for citizens accessible in sign language: how to vote in an election, for example, or register a child for nursery school. The system can be used to translate package inserts of pharmaceuticals. SiMAX can also translate loudspeaker announcements regarding municipal transport into sign language in real time as well as make multimedia museum tour guides accessible to the deaf community.
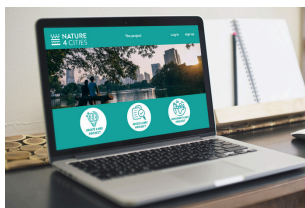
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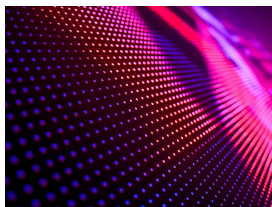
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SiMAX

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