



# EASIER & NEOLOGISMS

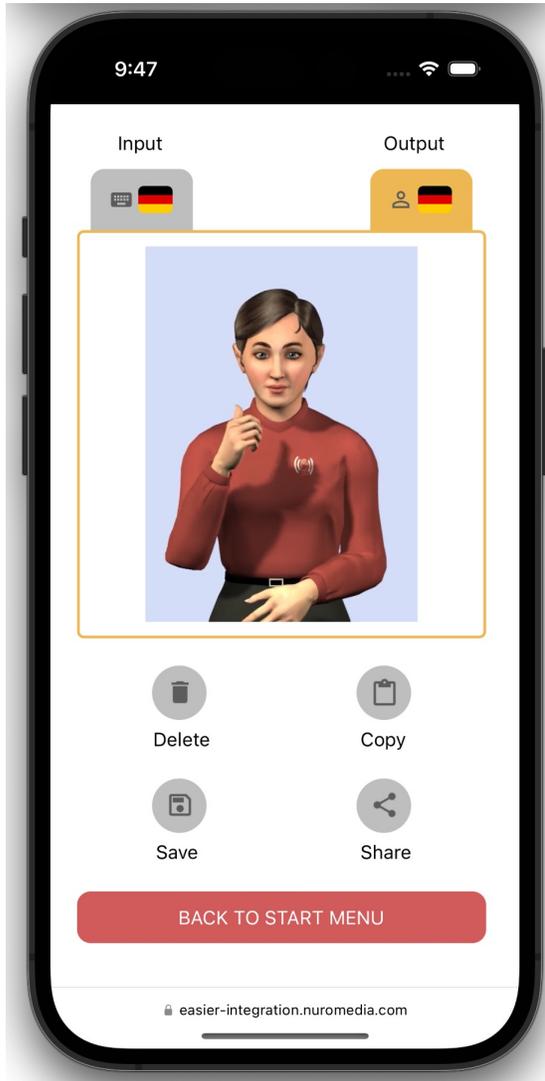
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# Meet the EASIER Consortium



- Translation between sign languages and spoken languages (speech or writing)
- Multiple languages
- Automatic (near-realtime) and semi-automatic (human post-editing)
- Mobile app demonstrating the automatic route
- Goals shared with the SignOn project (both funded within EU ICT-57)



- Speech-to-text
  - State-of-the-art machine translation
  - Avatar presenting signed output
- Robust data-driven video recognition → State-of-the-art machine translation → Output in text

- Producing comprehensible and easy-to-read signing is a must:
  - Producing a signed utterance sign after sign simply is not enough!
  - Communication is more than content-passing.

- Quality improvements in avatar technology beyond producing signs one by one: Prosody, affect



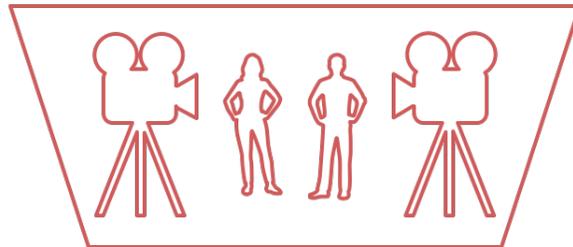
- Quality improvements in avatar technology beyond producing signs one by one: Prosody, affect
- End users in the loop: Develop measures for “ease of listening” once comprehensibility is achievable.
- Explore innovative ways for post-editing not only for expert translators, but accessible to community members.



- Sign language resources needed to train machine learning models are smaller than available spoken language data **by several orders of magnitude.**

- We therefore combine linguistic corpora and interpreted broadcast footage.

## Linguistic corpora



High quality

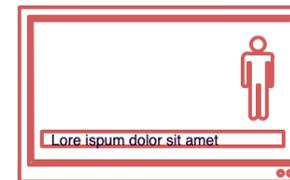
Variety of elicitation tasks

Source: Sign Language

Semi-spontaneous language production

Rich linguistic annotation + translations

## Broadcasting data



Large quantity

News domain

Source: spoken language

Interpreting under time pressure

Subtitles/Captions

Language	Number of sentence pairs in corpus*	Number of sentence pairs in broadcast data**
DGS	64 000	1 130 000
BSL	6 000	1 150 000
Std corpus for English-German	150 000 000	150 000 000

\* Public DGS Corpus, BSL Corpus

\*\* Broadcast data prepared for processing within EASIER

- We have a multitude of sign/spoken language pairs in Europe, ranging from some data to practically none.
- We try to create synergies by treating pairs in parallel.

- So why is EASIER interested in neologisms?
  - The idea that for each content word in one language you find a corresponding word in the other language is an extreme simplification of the game, esp. wrt sign language.
  - If constructed action, classifiers and such come to your mind: Yes, right, but the problems are already there on the lexical level!

- So why is EASIER interested in neologisms?
  - With our training data not only being orders of magnitude too small, but also being old, the data may well not contain counterparts in the other language.
  - And then not all lexical items do have counterparts in the other language: Lexical gaps occur within any language pair you can think of.
  - Sometimes neologisms close gaps. With so many gaps around, we better understand how they work.

- And our avatar should be prepared to produce signs that have not been around when it was trained.
  - See today's poster/demo by Wolfe et al.



# easier

*intelligent Automatic  
Sign language tRanslation*

# THANKS



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