

Media release on 25 May 2021
ZHAW School of Engineering

With public support: ZHAW and FHNW digitalise Swiss dialects

Both universities call for support on collecting Swiss dialects in German-speaking Switzerland. As of now, the public can help by recording language samples with an app. The digitalised dialects can train important computer programmes.

Chatbots and voice assistants like Siri or Alexa find it difficult to understand spoken Swiss German. That is due to the lack of audio files needed to train such systems. For technology companies like Google, Apple or Amazon, the Swiss market is too small to develop a solution. That is about to change. "We want to collect and digitalise Swiss dialects," says Mark Cieliebak from the ZHAW Centre for Artificial Intelligence (CAI). "We want to collect at least 2000 hours of recorded Swiss-German dialects to have a good database." Manfred Vogel of the FHNW adds: "We will use the collected data to train an AI-based algorithm to understand Swiss German and to transfer it automatically to High German text."

How the dialect collection works

A web application was developed for the project with which volunteers can record their own audio samples by translating High German sentences into dialects and/or verify the recordings of other participants. In the app, the participants can see from which Cantons other participants have submitted their audio files – and which Cantons and dialects are still missing.

Possible applications

With the collected data and the trained models, voice interfaces to different applications can be developed. For example, it would become possible to speak Swiss German with a voice assistant, and companies could evaluate customer feedback automatically, such as calls to customer service. Subtitles for tv shows could be generated automatically as well.

The technologies for training speech-to-text systems have been continuously developed in recent years and are now mostly based on neural networks. For languages such as English and German, these methods already deliver very good results with error rates of less than two per cent.

Strengthening Switzerland as a location for innovation

"Because we publish the data set for research purposes, computer programmes for different applications can be developed in cooperation with local companies", explains Manuela Hürlimann of the Swiss Association for Natural Language Processing (SwissNLP), who coordinates and leads the project.

The two universities are supported by the Media Technology Center of the ETH and the University of Zurich. The project is financed with internal funds of the ZHAW and FHNW with financial support of the Swiss National Science Foundation and the insurance company AXA.

Link to the web application: www.dialektsammlung.ch

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About the ZHAW School of Engineering

The School of Engineering is one of eight departments of the ZHAW Zurich University of Applied Sciences. With 14 institutes and centres, the ZHAW School of Engineering is one of the leading technical education and research institutions in Switzerland. It guarantees high-quality education and continuing education, while offering innovative solutions to the industry with a focus on energy, mobility, information, and health.

The FHNW School of Engineering

The FHNW School of Engineering educates more than 1,800 bachelor's and master's students in engineering, computer science and optometry at its campuses in Brugg-Windisch, Muttenz and Olten. With full-time or part-time studies, real life experience is a central element of the training. Together with leading companies in Switzerland and abroad, the FHNW School of Engineering conducts applied research and development. Further information at www.fhnw.ch