

A Machine Learning Automatic Speech Recognition Platform for Users with Dysarthria.

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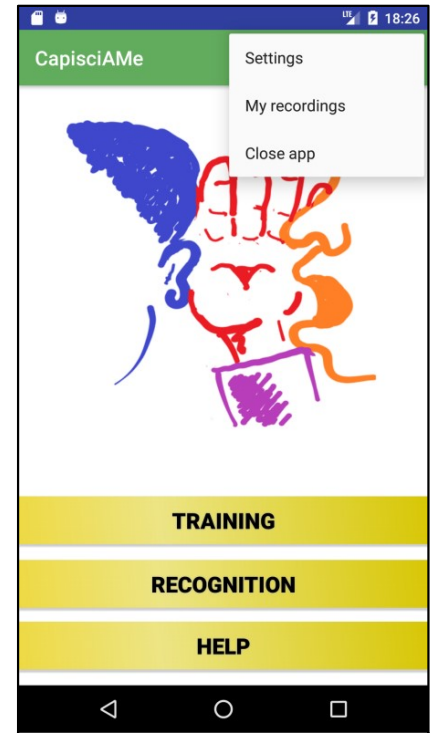
Context

Nowadays, virtual assistant services (such as Google Assistant, Apple Siri, Amazon Alexa) show poor performance in Automatic Speech Recognition (ASR) tasks in presence of dysarthria, i.e., a speech disorder leading to low intelligibility of user's speaking. This condition is often related with severe motor impairments, so people with disabilities cannot benefit from such technologies in many scenarios, like smart home.

The speech interaction with virtual assistants may be of critical importance for persons with speech disabilities and reduced motor skills, however these users are currently unable to access smart appliance services via their speech.

Proposed Solution

Within the field of artificial intelligence, we exploit deep learning technology in conjunction with convolutional neural networks to build an ASR system for users with dysarthria. This solution supports Google TensorFlow framework and requires no cloud services for the keywords spotting task.



During our demo, we are going to present an initial prototype of our system trained according to a speaker dependent approach. To define our speech dataset, an Android app, named "CapisciAME", has been developed: it allows users with dysarthria to share their voices by pronouncing selected keywords. With these data, we can enrich our speech model to serve application scenarios, such as smart home.

We bring together our ASR system with OpenHAB, framework for smart home, to show a basic application for people with dysarthria.

Get the app



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