ACOPT 38

Option LEAP – Listening Effort Prediction from Acoustic Parameters

Code 6871

DETAILS

Description

For acoustic test scenarios where no reference signal is available, Listening Effort Prediction from Acoustic Parameters (LEAP) is the single-ended algorithm to predict the listening effort of a degraded speech signal. LEAP is a software solution that has been developed by Fraunhofer IDMT-HSA. It assesses the listening effort of a speech signal on a 14-point categorical scale according to the Effort Scale Categorical Units (ESCU) from 1, signifying no effort, to 14, signifying only noise. The algorithm only requires the recorded speech signal but no clean reference signal for calculating the prediction.

Applications

LEAP evaluates perceived listening effort in situations where a clean speech signal is not available, e.g., synthetic speech from smart speakers, vehicle navigation or text-to-speech engines. Additionally, LEAP is applicable where a clean speech signal is technically available, but is overly difficult to obtain, e.g., in announcements via loudspeaker at train stations, airports, and similar places.

OVERVIEW

KEY FEATURES

› Assessment of perceived listening effort
› 14-point categorical scale

APPLICATIONS

› Smart speakers
› Text-to-speech engines
› Car navigation assistants
› Announcement systems
› Recordings of real conversations during test drives

REQUIREMENTS

Software

One of the following software applications:

ACQUA (Code 6810)
› Advanced Communication Quality Analysis Software, Full license version
ACQUA Compact (Code 6860)
› Compact test system

SCOPE OF DELIVERY

ACOPT 38, LEAP (Code 6871)
› as V2C file for ACQUA dongle

IN PRACTICE

Application Example: Smart Speaker

The smart speaker plays back synthetic speech. At the same time, 3PASS *lab* plays back background noise to disturb the speech signal. HMS II.3 receives the degraded speech signal with its ear microphones. *lab*CORE distributes the degraded speech signal coming from HMS II.3 to the ACQUA computer. ACQUA analyzes the degraded speech signal by applying the LEAP algorithm and presents the calculated listening effort prediction.
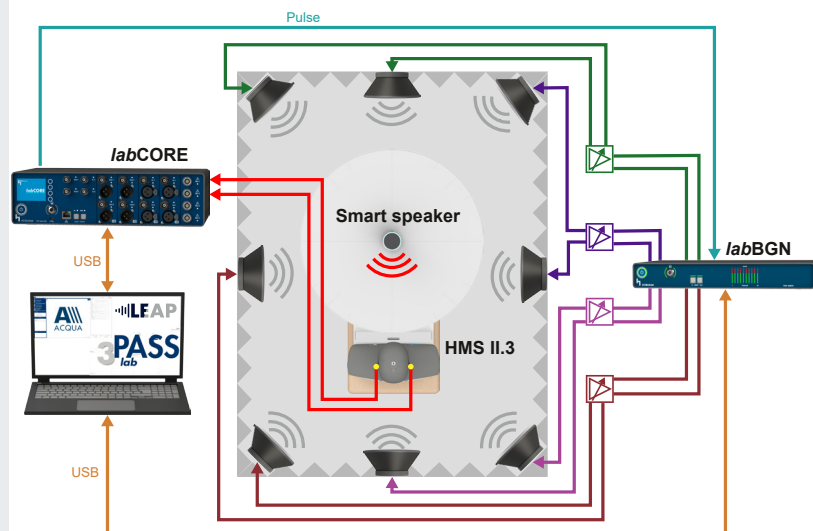
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