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Super-Wideband Extension of a Perceptual Based Echo Assessment Method for Aurally Adequate Evaluation of Residual Single Talk Echoes

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Speech communication beyond wideband is getting more and more common – necessitating sophisticated IP-based transmission technologies which in turn introduce longer delays. These two effects significantly influence echo perception. Therefore, the results of a comprehensive third-party listening test conducted in a super-wideband scenario are used to extend the scope of an existing instrumental method for the prediction of echo perception. Furthermore, a modified prediction methodology using a Random Forest regression algorithm is introduced.

The proposed model is trained with the auditory data from the super-wideband test corpus and the test corpora used in previous work on echo perception in narrowband and wideband scenarios. The combination of the new regression methodology and an improved echo analysis model provides estimated Mean Opinion Scores (MOS) for instrumental echo assessment in narrowband, wideband and super-wideband scenarios. The model shows very satisfying correlation to the underlying auditory data especially for the super-wideband case.

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