Nonlinearly distorted music and speech as perceived by hearing-impaired people

Hearing aids and other communication devices, such as telephones, introduce significant nonlinear distortion which reduces sound quality and may interfere with speech perception. The goals of the proposed research are to characterize and model the perception of distorted speech and music by hearing-impaired listeners. The first objective of the proposed research is to conduct listening tests to determine how hearing-impaired listeners evaluate the perceived quality of distorted speech and music. The second objective of the proposed research is to develop a computational model for predicting perceived quality judgments made by hearing-impaired listeners; in other words, to predict the data obtained in the first part of the project. The third objective of the proposed research is to test, and if necessary to refine, the developed models using recordings of speech and music replayed via existing assistive hearing devices.

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