

# Encoding Place-of-Articulation in Frequency-Lowered Speech for Hearing Devices

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## Technology description

Use of frequency lowering mechanisms to improve speech recognition in case of hearing impaired individuals (especially the ones with high frequency hearing loss) has been known since long. Some of the key approaches used for this purpose are channel vocoding, slow playback, transposition, and frequency shift using frequency compressions. However, these techniques are associated with several limitations such as unnatural sound quality, frequency lowering of non-targeted signals, and use of same acoustic cues for different phonemes. This novel frequency lowering system effectively allows for a place of articulation in frequency lowered speech for hearing devices, thereby overcoming prior art limitation

## Advantages

The system: Allows for a conditional frequency lowering, avoiding frequency lowering of non-targeted signals as observed with conventional techniques , Improves recognition of fricative and affricate consonants , Enables enhancement of spectral separation among different fricative consonants , Enables distinction of different places of articulation among fricative consonants, without compromising the recognition of other consonants (nasals, semivowels, etc.) , Allows for improved speech recognition and intelligibility for individuals with hearing impairment , Enables development of signal processing algorithms for hearing devices at a commercial scale

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