

REKNEW-DYSARTHRIA

Abstracts from research conducted in collaboration with the OHSU Department of Engineering & Science, Division of Biomedical Computer Science and BioSpeech, Inc.

MAKING DYSARTHIC SPEECH INTELLIGIBLE

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This NSF-funded project [joint with at the Child Development and Rehabilitation Center at the Oregon Health & Science University] will develop new algorithms that will enable dysarthric individuals to be more easily understood. Currently available devices are essentially spectral filters and amplifiers that enhance certain parts of the spectrum. While these can help certain types of dysarthria, many dysarthric persons suffer from speech problems that require forms of speech modification that are much more profound and complex such as: irregular sub-glottal pressure, resulting in loudness bursts that can be difficult to adjust to; absence, or poor control, of voicing; systematic mispronunciation of certain phoneme groups, resulting in certain sounds becoming indistinguishable or unrecognizable; variable mispronunciation; and poor prosody (pitch control, timing, and loudness). For these difficult problems, new approaches are needed that do not merely filter the speech signal but analyze it at acoustic, articulatory, phonetic, and linguistic levels.