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THE APPLICATION OF WAVELETS TRANSFORMS AND NEURAL NETWORKS TO SPEECH CLASSIFICATION

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ABSTRACT—This paper proposes a hybrid wavelet-neural network approach to classify speech for multifunctional control applications. The classification of the consonants (b,d,g) is the focus of this work. MultiResolution Wavelet Analysis (MRWA) was used to extract utterance features while a modular Artificial Neural Network (ANN) was used for classification. The performance of the proposed method was compared to that of the cepstrum method. The results show that MRWA are superior to the cepstrum in at least two points: higher recognition rate and consistent output demonstrating higher reliability.

Key Words: Speech analysis, Classification, Neural networks, Wavelets analysis