Detection of Bulbar Dysfunction in ALS Patients Based on Running Speech Test Optical Interposer

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2019

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Abstract: This paper deals with detection of speech changes due to amyotrophic lateral sclerosis (ALS) – fatal neurological disease with no cure. The detection process is based on analysis of running speech test. However, in contrast to conventional frame-based classification (in which whole signal is analysed) we proposed to use selected vowels extracted from the test signal. It is shown that similarity of spectral envelopes of different vowels and formant frequencies are crucial features for bulbar ALS detection. Applying the proposed features to

classifier base on linear discriminant analysis (LDA) the detection accuracy of 84.8% is achieved.

This article published in:

Vashkevich, M. Detection of Bulbar Dysfunction in ALS Patients Based on Running Speech Test Optical Interposer / M. Vashkevich, A. Gvozdovich, Y. Rushkevich // PRIP 2019: Pattern Recognition and Information Processing. Communications in Computer and Information Science. – 2019. – Vol. 1055. – P. 192-204. – https://doi.org/10.1007/978-3-030-35430-5_16.

Internet link to the article:

https://link.springer.com/chapter/10.1007/978-3-030-35430-5_16.