

Title (EN): **Articulatory characteristics of Lombard speech. Global coordination of the jaw, lips and the tongue**

Title (SK): **Komplexná artikulačná charakteristika reči v hlučnom prostredí. Globálna koordinácia sánky, pier a jazyka**

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Annotation: Lombard effect is one of the phenomena that significantly influence the success of automatic speech processing deployed in information systems. Speech recognition in noisy environmental conditions is not only affected by the features of this environment but also by the changes in acoustic properties of speech in such environment. While the acoustic properties of speech in a noisy environment are well researched, articulatory implementation of speech in such environment is still little known.

Limited available studies examine only visible articulators like the jaw or the lips, but not the movements of the tongue. In this result, using Slovak as the language under investigation, we provide a comprehensive description of the articulatory characteristics of speech in environment with babble noise of different volume levels. We compare relative expansion (variability) of articulatory movements due to the increasing conversational noise in three basic subsystems: lips, jaw and tongue. Despite the relatively high correlation of this expansion in the three subsystems, they still differ in the degree of continuity among the expansion of the individual volume levels of conversational noise.

The analysis supports the model in which the prosodic realization of hyper-articulation in noisy environments is mainly produced in the lip-jaw subsystem and the stability of the phonological system and the contrast between phonemes is due to the tongue subsystem that provides the correction of the hyper-articulation in the lip-jaw system.

Main scientific outputs:

1. Šimko, J., Beňuš, Š., Vainio, M. (2016). Hyperarticulation in Lombard speech: Global coordination of the jaw, lips and the tongue. *Journal of the Acoustical Society of America*, 130(4), 2116-2127, (1.572 - IF2015). Typ: ADMB