

Measuring How Brightness Mediates Auditory Salience

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Abstract : While we are constantly flooded with stimuli in daily life, attention allows us to select the ones we specifically process and ignore the others. Some salient stimuli may sometimes pass this filter independently of our will, in a "bottom-up" way. The role of the acoustic properties of the timbre of a sound on its salience, i.e., its ability to capture the attention of a listener, is still not well understood. We implemented a paradigm called the "additional singleton paradigm", in which participants have to discriminate targets according to their duration. This task is perturbed (higher error rates and longer response times) by the presence of an irrelevant additional sound, of which we can manipulate a feature of our choice at equal loudness. This allows us to highlight the influence of the timbre features of a sound stimulus on its salience at equal loudness. We have shown that a stimulus that is brighter than the others but not louder leads to an attentional capture phenomenon in this framework. This work opens the door to the study of the influence of any timbre feature on salience.

Keywords : attention, audition, bottom-up attention, psychoacoustics, salience, timbre

Conference Title : ICEP 2022 : International Conference on Experimental Psychology

Conference Location : Paris, France

Conference Dates : April 14-15, 2022