

3-D amplifies emotions evoked by facial expressions

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Six stereoscopic image pairs used in the experiment. The images can be seen in 3D by 'looking through' the image.

"3D photographs trick the brain into thinking that the face in a 3D photograph is more real than in the 2D photograph," explains Hakala.

Whereas the negative valence and arousal elicited by angry expressions was most significantly amplified at the most natural depth magnitude, the positive valence elicited by happy expressions was amplified in both narrowed and natural depth conditions. The [research findings](#) are relevant for virtual and augmented reality 3D displays such as Oculus Rift, indicating that 3D content must preferably provide a natural depth percept to provide emotion-evoking experiences.

The research findings highlight the sensitivity of the visual system to depth, and have implications for emotion research, entertainment industry and 3D displays.

"Currently, 3D is mostly used in action films to emphasize the effects, but it could be also employed to enhance the emotions conveyed by the actors," concludes Hakala.

Mediated [facial expressions](#) do not elicit emotions as strongly as real-life facial expressions. In particular, 2D photographs of facial expressions fail to evoke emotions as strongly as live faces, possibly due to the low fidelity of the pictorial presentation.

The study was conducted by Jussi Hakala and Jari Kätsyri at the Aalto University Department of Computer Science and Jukka Häkkinen at the Institute of Behavioural Sciences, University of Helsinki. Arousal and valence data was collected from 40 participants.

In a new study, researchers in Aalto University and University of Helsinki found that 3D facial expressions evoke stronger emotions than their 2D counterparts. Due to the illusion of non-mediation, natural depth levels create the strongest emotional amplifications. In this experiment, depth magnitude was manipulated by varying the distance between the two cameras providing the left and right images for the 3D presentation.

The study was recently published in *i-Perception*.

More information: J. Hakala et al. Stereoscopy Amplifies Emotions Elicited by Facial Expressions, *i-Perception* (2015). [DOI: 10.1177/2041669515615071](#)

"Until now, facial expressions have been studied by using 2D photographs and the results have been generalized to the real world. Yet stereoscopic images replicate reality more faithfully and thus are more valid stimuli," states doctoral candidate Jussi Hakala.

Provided by Aalto University

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