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The Influence of Audio on Perceived Quality of Segmentation

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Abstract : To evaluate the quality of a segmentation algorithm, the authors use subjective or objective metrics. Although subjective metrics are more accurate than objective ones, objective metrics do not require user feedback to test an algorithm. Objective metrics require subjective experiments only during their development. Subjective experiments typically display to users some videos (generated from frames with segmentation errors) that simulate the environment of an application domain. This user feedback is crucial information for metric definition. In the subjective experiments applied to develop some state-of-the-art metrics used to test segmentation algorithms, the videos displayed during the experiments did not contain audio. Audio is an essential component in applications such as videoconference and augmented reality. If the audio influences the user's perception, using only videos without audio in subjective experiments can compromise the efficiency of an objective metric generated using data from these experiments. This work aims to identify if the audio influences the user's perception of segmentation quality in background substitution applications with audio. The proposed approach used a subjective method based on formal video quality assessment methods. The results showed that audio influences the quality of segmentation perceived by a user.

Keywords : background substitution, influence of audio, segmentation evaluation, segmentation quality
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