Review

Clustering approach to characterize haptic expressions of emotions

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Full Text

Haptic communication--the way in which humans as well as animals communicate via touching--is an important form of nonverbal communication. Haptic expressions are a crucial part of haptic communication. The haptic sense, or touch, is of considerable importance for both humans and animals. It is a component of nonverbal communication in interpersonal relationships. The vitality of haptic expressions is evident in conveying physical intimacy.

Advanced features for the effective communication of emotions are examined in this paper. A clustering-based approach has considerable advantage over the commonly used analysis of variance (ANOVA) method. With ANOVA, all expressions of a given emotion are mixed within a single population; this may lead to large standard deviations for some measures. The clustering approach is able to identify the various groups of expressions that provide more representative measures for each cluster. This leads to finding more significant differences, and thus more discriminative features, between emotions. ANOVA has not been able to do so. Clustering is one of the methods for unsupervised learning and it has stronger discovery potentials than ANOVA.

The results provided "several general features of affective haptic expressions for each emotion and ... relevant discriminative features between close emotions." The presented approach also found "specific combinations of features for each emotion studied." The results of this study could be useful, for example, in the creation of synthetic affective haptic expressions. It is definitely innovative research worth our attention.

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